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THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

MAJOR ARTICLES

Building Codes: Administration vs. Techniques ..... Howard P. Vermilya
The Reproduction-Cost-of-Service Principle ..... Joseph Jeming
I. The Emergency Fleet Corporation's Housing Experience ..... John L. Tierney
Farm Buildings and the Productivity of Crop Land ..... P. E. McNall
II. The Allocation of Utility Servicing Costs ..... William F. Kennedy
Economic Background of Cities ..... Homer Hoyt
II. Certification of Motor Common Carriers. John J. George and Joseph R. Boldt, Jr.
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DEPARTMENT ARTICLES

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Public Utility Financing: First Quarter, 1941 ..... R. G. Dudley and W. H. Evans

VOLUME XVII, NUMBER 2 MAY, 1941 PRICE $1.50 A COPY

How Much Electricity is 3,366,000 Horsepower?

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● The Commonwealth & Southern Corporation and affiliated companies will use to the fullest their combined experience and their resources to aid the nation's defense program and for the continued benefit of all of the many communities served.

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The Commonwealth & Southern Corporation

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Founded by RICHARD T. ELY

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Building Codes:
Administration vs. Techniques

By HOWARD P. VERMILYA*

BUILDING legislation unquestionably affects our social and economic structure on a national scale. Although fundamentally sound in its objectives, particularly with respect to its social implications, failure of this legislation to keep pace with progress in the science of building retards development in the social world and adversely affects the economic structure. Obstacles to immediate improvement in the situation are apparent, but ways of expediting a solution of the problem are possible and necessary.

Analysis of the situation substantiates the statement that building legislation affects more than building construction per se. The difficulty of evaluating the tangible and intangible effects on the social structure must be conceded. The impossibility of determining in dollars and cents the economic effect of legislation governing building construction also must be admitted at the outset.

An analysis of what has and is occurring, however, is convincing evidence of the magnitude of the effects of building ordinances and is indicative of the need for serious consideration of a remedial program. To be constructive the program must be practical and comprehensive and be based upon the establishment of sound standards which can be efficiently administered in the public interest.

Basic objectives of building regulations are the protection of health and safety to life. These objectives are attained through control of the design, construction, and use of buildings. In so far as these controls accomplish the desired ends at reasonable cost to society, adverse comment has little foundation. However, where building code requirements are too low, society pays dearly because of inadequate protection to health and safety. On the other hand, where building code requirements are too high, society also pays too much because of unreasonable increases in the cost of construction. Where a code increases the cost of buildings beyond a reasonable minimum or permits an unreasonable degree of hazard to health and safety, unjustified expense is placed

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This article represents the views of the writer and not the official views of the Federal Housing Administration.

upon society with attendant undesirable social and economic results. Building codes have been criticized on both counts with considerable justification.

Standards established in building codes should be placed at a level which provides the greatest protection to life, health, and welfare without causing excessive building costs. There exists, however, no known method of balancing this type of social and economic account. Balance can be achieved only through intelligent coordination of experience and research data.

Some idea of the economic importance of building codes may be derived from the statistics in Table I taken from the February, 1941 *Survey of Current Business* published by the Department of Commerce. Although the figures do not state the amount of construction actually controlled by building codes, it is reasonable to assume that most private construction, if farm buildings and public utility construction other than buildings are excluded, was so controlled. To this figure may be added public construction of residential buildings which in 1940 amounted to 200 millions of dollars, the majority of which was built under the United States Housing Authority in compliance with local codes. Since it is logical to assume that construction of public buildings was influenced by standards of building codes and the cumulative effect of these regulations, the economic importance of building regulation may be presumed to be even greater.

Economic and Social Implications

The construction of buildings and the failure to erect needed buildings have important social and economic implications. Any condition that increases building construction costs has the effect of retarding construction activity. This produces a decline in the employment of labor engaged in construction and also of labor engaged in the production of construction materials extending back to the forests and the mines. Transportation, a major factor in building materials costs, is correspondingly affected. During the early 30's much of the economic distress was attributed to the lag in the construction industry which, as indicated in Table I, is still well below the levels of 1926–29.

In addition, every increase in construction cost is reflected in the prices paid for commodities. If the cost of a commercial or industrial building is increased, the higher rental or fixed charge must be distributed to every product manufactured or sold in that building.

TABLE I. ESTIMATED VALUE OF NEW CONSTRUCTION ACTIVITY, BY PRINCIPAL USES OR FUNCTIONS OF PROJECTS
(Millions of Dollars)

Item	1926–29 Average	1937	1938	1939	1940
New Private Construction					
Residential (non-farm)	4,066	1,530	1,515	1,860	2,077
Non-residential building:					
Commercial	1,187	386	311	319	373
Factory	640	391	192	200	337
All other non-residential	659	185	233	266	246
TOTAL NEW PRIVATE CONSTRUCTION Excluding farm building and public utility construction other than buildings	6,552	2,492	2,251	2,645	3,033
TOTAL NEW CONSTRUCTION—Public and Private	10,702	5,470	5,189	6,072	6,580

As a consequence, prices are increased and consumption is reduced. When less goods are produced, fewer workers are employed and less money is placed in circulation, which in turn affects other industries.

With reference to dwelling construction costs, higher rental levels mean less money for the consumption of groceries, clothing, radios, automobiles, movies, and cosmetics. This means a reduced labor market which is reflected throughout the whole industrial system with far-reaching effects. Again high rentals cause overcrowding of dwelling accommodations with attendant ill effects on the standard of living.

Increase in the cost of public buildings causes increased taxes which, although indirect, are nevertheless reflected in rents and in prices of commodities.

Figures taken from "Consumer Incomes of the United States—A Report of the National Resources Committee" published in August, 1938 show that 31% of the non-farm families received incomes in 1935 of over $2,000. Some 66% received incomes of over $1,000. According to a generally accepted rule-of-thumb, it is unsound to purchase a house costing more than two and half times the buyer's annual income. On this basis 31% of the non-farm families can afford a house costing over $5,000; 34% cannot afford one costing $2,500 and, in fact, probably cannot afford to purchase a house at all.

If these statistics are interpreted in terms of rentals, only 31% of these non-farm families can afford to pay more than $42 a month for rent and 66% of them more than $21 a month.

Under existing conditions most new houses are being produced at prices higher than the large proportion of non-farm families can afford to purchase or rent. These families are forced to live in second, third, or fourth hand houses, many of which are unsanitary and unsafe.

It would be absurd to charge building codes with the responsibility for present costs of construction or with the inability of a majority of the population to afford adequate housing. Many, however, believe it to be a contributing factor.

Building Code Deficiencies

Building codes vary in their requirements from jurisdiction to jurisdiction. As a result, they impede the development of national markets for building materials by preventing or placing penalties upon their use or by requiring a multiplicity of sizes of materials and thus defeating the economic benefit of standardization. To lack of uniformity in requirements may be attributed some of the cost of building materials.

A typically glaring inconsistency in building codes is seen in the variation of the required working stress of structural steel which ranges from 16,000 pounds per square inch to a value of 20,000 pounds. The manufacture of structural steel has been developed to produce a generally uniform product. If a working stress of 18,000 pounds per square inch is safe in Richmond, Virginia, it is logical to believe that it is equally safe in Oakland, California. Or if 18,000 pounds is adequate in Los Angeles county, why should the city of Los Angeles allow a working stress of only 16,000 pounds per square inch for the same product?

Fire protection requirements in many codes are based upon the thickness of materials rather than the length of time fire must be resisted. In at least one city there is an arbitrary requirement of 8 inches of masonry around steel columns. Out of a number of codes examined, one requires 5 inches of concrete as fireproofing for a 4-hour rating; seven re-

quire 3 inches; five, 2 inches; and 4 require a thickness of only 1½ inches. Obviously there cannot be a difference of 3½ inches for fireproofing to resist a 4-hour fire and the requirements evidently are not based upon fact.

To illustrate further the lack of uniformity in the standards established, the following data are taken from a survey made by the National Bureau of Standards, Department of Commerce, of 87 representative codes.

The codes of these 87 representative cities show a marked discrepancy in live load requirements for dwellings. Sixty-two codes require structural members of first floors to be designed on a basis of 40 pounds per square foot; 14 require 50 pounds. Eleven codes have a variation from 60 to 100 pounds per square foot. It seems highly improbable that people and household furniture weigh 60 pounds per square foot of floor area more in Greenville, South Carolina than in Buffalo, New York or Seattle, Washington. Variation in these code requirements indicates a lack of fundamental knowledge of actual floor loads likely to occur in houses. If 40 pounds is an adequate live load in 62 cities, then the citizens of the other cities are paying an unnecessary penalty in the cost of floor, wall, and foundation construction beyond that safely required.

Of 73 cities, 52 require basement walls of two-story masonry buildings to be 12 inches thick and the upper stories 8 inches; three require 16 inches for the basement walls and 8 inches above; one requires 16 inches for the basement and 12 inches above. Seventeen out of the 73 codes permit 8-inch masonry walls for basement, first, and second stories. In those cities where the wall thicknesses exceed those demanded by safety, the public is paying more than it should for its houses and other buildings.

At least four cities in the East prohibit balloon frame construction. This restriction is difficult to understand since this system of erecting wood-frame structures has been successfully used for a great many years in various parts of the country.

Where building codes stipulate minimum room sizes, requirements are known to vary from 60 to 120 square feet. Ceiling height limitations range from a minimum of 7 to 9 feet. Twenty-four out of 88 codes examined place the minimum at 8 feet. This would appear to be a reasonable requirement and it is questionable whether a valid reason exists for increasing the cost of dwellings by making a greater ceiling height mandatory.

The need for code variations arising from local conditions is recognized. Sections of the country which experience winds of tornado or hurricane proportions, heavy snowfalls, or are subject to earthquake disturbances and other peculiar physical and climatic factors require special structural considerations. Variations in such requirements result from variations in physical conditions rather than from lack of agreement concerning construction practice or from ignorance of fact.

Building codes generally specify the acceptable method of construction. This description permits the use of conventional construction with materials that have been in common use for many years. As a consequence, it is difficult and often impossible to introduce in many jurisdictions new methods of construction or new materials. Many codes make no provision for such acceptance. At best, the introduction of new techniques is a tedious time- and money-consuming process, as each building authority must separately have demonstrated to it that the construction is

acceptable within the scope of the particular code administered. A process as abortive as this cannot but delay the development of less costly and greatly improved materials or methods of construction. At the same time it also perpetuates the unsatisfactory. The construction industry cannot develop under restraints of this unwieldy character, without a cost to society in the form of reduced accommodations or protection or in actually increased financial outlay.

In an attempt to raise standards of workmanship many codes have required the licensing of artisans, a provision about which there can be little objection when it is administered in the interest of the public. However, in many jurisdictions misapplication of the licensing process has created a trade barrier. Restrictions applying to materials having similar effect also have been included in codes. These operate to prevent free competition and to create an artificial monopoly for one manufacturer or one material or a particular labor group. Maladministration may have similar effects where incompetence, prejudice, or the pressure of particular interests may obtain for certain materials or groups benefits which are inimical to the public interest.

Code authorities are not ignorant of the economic effect of the standards established. Therefore standards, particularly those affecting health, are likely to suffer when there is fear that construction may be retarded.

A further factor which deserves consideration is the effect of requirements upon the physical life of the building. Abundant evidence leads to the conclusion that in most buildings the physical life exceeds the economic life. Obsolescence has become an increasing factor in economic considerations. More rapid amortization of the cost of the structure is therefore required than if physical life were the controlling criterion. To meet this situation less permanent construction than is provided by the usual methods of construction described in codes may have desirable attributes.

Other controls of buildings must share with the building code the responsibility for many of the effects to which reference has been made, for building is controlled also by zoning and housing acts, plumbing and electrical codes, fire and health regulations, and labor laws, all of which in some jurisdictions may affect the design, construction, and use of buildings.

It would be difficult indeed to measure the extent of the effect which building codes may have upon costs of construction and the costs to society. Such a study would be difficult to justify.

Technical Progress to Date

There is need to reexamine building codes and their established requirements to determine the level of attainment necessary to adequately protect health and safety at reasonable construction cost. It also is desirable to determine the procedures necessary in the formulation and administration of standards to provide flexibility in their achievement.

These needs are not newly discovered. Criticism of building legislation has been current for many years. The hearings on the construction industry held by the Temporary National Economic Committee in the spring of 1940 developed criticisms similar to those included in the hearings of the Senate Committee on Reconstruction and Production in 1921 which resulted in the establishment of the Building Code Committee of the Department of Commerce. This committee was asked to examine the situation scientifically and to develop specific recommendations for improvement. It worked in close cooperation with the National

Bureau of Standards which provided the staff, handled investigations, conducted tests, and published reports and recommendations. Much valuable data in the form of bulletins containing basic data for codes were developed under the auspices of this committee. Where their recommendations have been accepted, economies have resulted.

The work of the Building Code Committee of the Department of Commerce was curtailed in 1933. In 1934 the committee's activities were assumed by the Building Code Correlating Committee of the American Standards Association under whose direction the work is being continued in cooperation with the National Bureau of standards.

In 1922 the Pacific Coast Building Officials Conference was organized. As a result of this activity the first edition of their Uniform Code was printed in 1927. Since then it has been adopted with minor modification by 290 communities, including both small and large municipalities and several counties.

The following quoted from the preface of the 1940 edition of the Uniform Code may be of interest as an indication of the motivating force behind the Conference and of the situation causing its organization:

"The Uniform Building Code is dedicated to the development of better building construction and greater safety to the public, through the elimination of needless red tape, favoritism, and local politics by uniformity in building laws; to the granting of full justice to all building materials on the fair basis of the true merits of each material; and to the development of a sound economic basis for the future growth of cities through unbiased and equitable dealing with structural design and fire hazards."

The Uniform Code is constantly being revised—the 1940 Edition being the fifth revision—through standing committees operating under procedures established by the Conference. In 1939 it established its own testing and research laboratory.

The Recommended Code of the National Board of Fire Underwriters stressing protection against the hazard of fire has made important contributions to this field. The Code for Reinforced Concrete of the American Concrete Institute, culminating work started in 1906, issued tentatively in 1928 and finally in 1936, has made similar contributions. To those may be added the Code for Steel Construction of the American Institute of Steel Construction and many well considered codes prepared for particular jurisdictions by public spirited citizens.

Despite the vast amount of valuable time and energy thus far expended, much remains to be done. This was evidenced in the hearings of the Temporary National Economic Committee and in the findings of Peter A. Stone and R. Harold Denton, printed for the use of this Committee, in the monograph "Toward More Housing." In part, the recommendations contained in this monograph include:

"1. That adequate funds should be provided by Congress to a specially designed group for the initiation and coordination of comprehensive laboratory research directed at the immediate development of materials and methods for low-cost housing. 2. Active encouragement should be given . . . the standardization of building materials and structural dimensions . . . as an essential part of the comprehensive research program . . . 3. Standard building codes should be formulated for residential construction in the various regions into which the United States is naturally divided. That until such ideal codes have been devised, methods of direct attack should be adopted . . . to secure revisions of the most serious restrictions contained in existing codes in the larger cities."

What Needs To Be Done

An underlying difficulty to a solution of this problem is that authority for en-

forcement of building code regulations is vested in the individual states through the police power reserved to the states at the time the Constitution was adopted. The states in turn either through enabling acts or charters have empowered municipalities to draft building codes. This process has resulted in extreme decentralization.

There is no record of the exact number of building codes that are in effect. Estimates of the number of communities so controlled place the number as between 1,600 and 1,800. According to the 1940 Census there are some 3,500 urban communities having a population of 2,500 and over. Many of these communities no doubt have ordinances controlling building which are not strictly classified as building codes.

Although building regulation is a national problem in many of its aspects, it does not yield easily to a national solution, a factor which is at the core of the difficulty. No solution which does not effectively treat with this phase can produce desired results.

Because of the national aspects of the problem several steps that might be employed are suggested. One would be to attempt the required control of buildings through national legislation. This, however, would imply either a constitutional amendment or an extension of the scope of the Interstate Commerce Act which in all probability would not stand the scrutiny of the courts. Then, too, grave question arises concerning the desirability of such a procedure. Local climatic conditions necessarily govern design and construction in some areas. Any attempt to satisfactorily apply available data to these specific conditions encounters obstacles which emphasize the need for more facts than we now have at our command. A solution through national legislation also would face the danger of the development of an unwieldy bureau ultimately bogged down by red tape, whose inflexibility might defeat the very purposes for which it was established.

It has been suggested that the number of jurisdictions might be reduced by the creation of state building codes. This approach has some merit but so far it has met considerable opposition from rural areas and small communities which do not feel the need for such controls. The result, where state codes have been tried, has tended to complicate the problem by adding to rather than decreasing the number of codes.

A possible solution would be to establish a national building code advisory service through federal legislation. The service could be modeled after the National Advisory Committee for Aeronautics or possibly after the National Public Health Service. For the purposes of this study, it is not essential that we consider the organization of the code advisory service. It must, however, be a body which is free from all pressures and established with adequate resources to permit it to function effectively.

The scope of this organization would include the formulation of standards on the basis of experience and research data, their codification, the establishment of test procedures to determine compliance of materials and methods of construction with the standards, and the provision of an advisory service to local jurisdictions. This solution would appear to offer more promise under our republican form of government than any of the others considered. Given adequate personnel, equipment, funds, and support, much could be done through such an agency to provide better local building control legislation.

Although much of the emphasis in work connected with building codes during the last 20 years has been concerned

with design criteria, standards, and test procedures, there remains a need for an extension of this work and for a critical reexamination of the bases of much of the work done. Experience has shown that not only are reliable criteria lacking but that new problems demanding data, only available through a research program, are constantly arising to modify existing concepts. Local jurisdictions and isolated groups lack the funds and personnel to develop the basic data required for formulating standards. Much of the lack of uniformity found in codes may be attributed not so much to fundamental factors as to lack of agreement in the interpretation of man's experience and the lack of adequate data upon which to base judgment.

Research and experience data are essential to the formulation of standards. Too often because no accepted measurement exists, new materials or methods of construction are discouraged, thus preventing or delaying the acceptance of a possible contribution to the science of building or to lower costs. On the other hand, acceptance may prove costly to those—often the public—at whose expense the experiment was conducted.

The actual formulation of standards is in itself an important phase of a building code program intended to permit development and growth. There is much controversy here between those who prefer performance standards and those who prefer definite specifications describing acceptable constructions and materials. The disagreement does not appear irreconcilable for it is possible to retain the advantages of each by stating the standard in terms of performance as well as describing acceptable constructions. This method of formulation retains the flexibility provided by the performance standard and at the same time meets the practical objections to its use offered by advocates of the specification form.

It is not enough to state that a wall when located in a particular construction must have a fire resistance rating of 4 hours in accordance with the Standard Fire Test of the American Society of Testing Materials. To design a building having this requirement one must know what walls have met the test. The combination of performance standards and specified acceptable constructions as a basis of code formulation provides flexibility, for any wall passing the test will comply and an amendment to the code covering a new wall construction becomes unnecessary. Such information can be made available to the public and to local building authorities.

Today, without a centralized building code advisory service, the sponsors of a new material or construction must seek the approval of each code authority, present test data, or comply with other procedures to obtain approval for its use. Where a material or construction complies with a standard or is tested in accordance with standard test procedure formulated by one centralized agency having national recognition, approval for use in each jurisdiction can become automatic. Obviously such a procedure would produce economies, and remove many of the obstacles to the development of the construction industry.

Under such a procedure it would be difficult to support local code restrictions not justified by local conditions. The courts could therefore provide protection against discrimination as expert testimony or test procedures would supply a means of determining the basis for compliance. Today, because of the great variation in opinion and the lack of adequate data, an appeal to the courts has less opportunity of providing relief. Similarly, local pressures and prejudices in the writing of codes could be attacked.

Maladministration of code authorities through incompetence, prejudice, or dishonesty would be more easily detectable.

Once formulated, the incorporation of these standards in the code of each local jurisdiction is a most important and difficult problem. Despite the valuable work of the Department of Commerce Building Code Committee, working in conjunction with the National Bureau of Standards, its influence is directly traceable to only a relatively small per cent of municipal codes, some state codes, and several "model codes." Added to the difficulty is the problem of adaptation of these standards to local conditions, including the establishment of fire districts, which are necessarily a local problem. A further problem is the integration of legislation with the administrative organization. Much of the value of the data developed by national bodies is lost in the process of incorporation into local codes. A printed document cannot possibly present data which require adaptation to a local condition. An agency which can make competent experienced personnel available as consultants to local code authorities when revising their codes or amending them can effectively accomplish the desired objectives.

It would appear that, if building regulations are to keep pace with increasing knowledge and changing methods, if greater uniformity of requirements is to be achieved, if requirements are to be set at the lowest level consistent with safety and health, and if better buildings are to be erected, a method must be developed which will provide a practical service to each local jurisdiction.

Such a service must, necessarily, consist of more than published data. It must include an analysis of the local problem made by individuals with wide technical and administrative background. The service should be concerned not only with the legislative but also with the administrative function. It should be a continuing service, for building construction is not static. Research is constantly providing new knowledge, inventions creating new materials, equipment and methods, and new conditions are presenting new demands and situations.

The solution to the building code problem which has been suggested results from an attempt to look at the situation constructively. The suggested program should not be construed as discounting the able work being done by organizations now working in this field. These organizations perhaps are doing all within their power to aid and improve a complex situation. The suggested program would aim toward a better coordination of their efforts and accomplishments.

Satisfactory solutions of complex problems are seldom found in compromises which attempt to make the best of an existing situation. More often it is a matter of "taking the bull by the horns" which in this instance appears to be a question of a new attitude and approach to the building code problem.

The importance of the building code situation as it affects our national social and economic structure warrants the thoughtful consideration of the construction industry, legislators, and the public. A national advisory service supported by the cooperation of local code authorities would go far toward a solution of the building code problem and result in a more advantageous spending of the building dollar.

Public Utility Rates on a Reproduction-Cost-of-Service Principle

By JOSEPH JEMING*

Introduction

THAT rate-making for public utilities in the United States has not proved wholly satisfactory up to the present time cannot be denied. No other proof is needed to support this contention than the many conflicting court decisions, commission orders, and the extensive and often contradictory literature on this subject. Perfection is an unattainable goal in this imperfect world but a closer approach is worth striving for.

An attempt will be made to approach the ideal situation by an exposition of the "reproduction-cost-of-service" principle of rate-making. In this connection, it will be necessary to make reasonable assumptions where pertinent facts are not available. The actual test of the thesis must be left to the future in the hope that the a priori reasoning here presented will induce a practical application of the proposed principle. Before entering into a detailed discussion of the problem, a formulation of the general framework within which the problem is to be attacked and a statement of the final goal is of prime importance.

The United States operates under what may be termed a capitalistic economy. That is, a great portion of the national economy is under private ownership and operation and is regulated only to the extent permitted by existing laws. These laws are usually designed to avoid discrimination against any class or individual. The only notable exception to this rule is that portion of our national economy designated as the public utility industry. The intention here is not to enter into the controversy as to the desirability of capitalism versus socialism in general nor the question of private ownership of public utilities as compared with public ownership.

The purpose here is to develop a rate-making principle which will fit regulation of public utilities into the general framework within which industry as a whole operates in the United States. The final goal is the elimination of discrimination in the case of public utilities without overlooking the need for regulation. The problem resolves itself into one of developing such a principle and then analyzing it in all its aspects.

Basis of Rate Determination under a Reproduction-Cost-of-Service Principle

In a competitive market, a new producer coming into the market with the advantages of a modern and more efficient plant would have the opportunity of earning profits in excess of the average for the industry. This follows because of the hypothesis that in a competitive economy any single producer cannot immediately affect the market price. However, under the premises upon which the theory of pure competition is based, all producers know their market perfectly and would, therefore, take full advantage of the lower costs of production made possible by progress in the arts. Thus, in the long run, the supply curve for the entire industry would be shifted and a lower market price would result. There is no inconsistency between the statement that the new and efficient producer will earn excess profits and the postulate that eventually the market

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price will be based on a new supply function, all other things being equal. The excess profits are possible in the short run, but a new equilibrium appears in the long run.

The theory of competition is useful as a guide to a further analysis of the characteristics of competitive economy. In practice, the facts approach the theory but generally are not fully consistent with it. In the markets which are encountered in real life, all buyers and sellers are not omniscient. The policies of a single producer may be reflected in the market price and, similarly, a single large buyer may cause a shift in the demand function for a particular good. In a framework of imperfect competition, the introduction of more efficient producers' plants in the market for producers' goods may induce a new entrepreneur (or an old one who is alert) to enter the market for consumers' goods and attempt to profit by a market price which has been stabilized in accordance with previously established supply and demand functions.

However, the introduction of additional supply will cause the given demand to be redistributed among the several producers. If the demand for the commodity is elastic, the sellers or producers will attempt to increase the quantity sold by lowering the price. The lower price may cause the least efficient producers, those for whom the new price would cover no more than average prime costs of production, to drop out of the market. This decrease in supply coupled with the increased demand resulting from the lower price will eventually cause a new and somewhat higher market price to be established. Whether this new price would equal the average total costs, which include a "fair profit" to the most efficient producer, is questionable. The new price may be greater than or less than average total cost to the most efficient producer. If the new market price yields less than a "fair profit," that is, the profit which the newest producer expected to earn upon entering the market, a mistake has been made by him in his planning. However, if the new price is high enough to yield more than a "fair profit," one of two things may result. Another entrepreneur would realize the possibilities of favorable investment offered by this market and become another competitor; or, the first new entrepreneur may enlarge his plant in an effort to take away still more business from less efficient producers.

This situation leads to the conclusion that under favorable circumstances, that is, where no mistakes are made by the entrepreneur, the market price for the commodity will, in the long run, stabilize at a point where it will equal average total costs to the most efficient producer. It seems, therefore, that here is an ideal way in which a basis for determining public utility rates may be developed. The analysis of the framework of competitive economy shows a time lag between the introduction of more efficient tools of production and the effect on the market price of the good produced. The new and most efficient producer is not attracted into the market immediately upon the advent of improvements in the art. It takes time for him to become aware of his opportunities; investment funds must be raised; plant must be constructed; personnel must be trained; and the business has to be developed. If theory can be modified to the extent of eliminating these intermediate steps, the following conclusions may be drawn. The market price, at any given time, will stabilize at a point at which profits will be sufficient to interest investors in placing their funds in the most efficient plant available at this time. The market

price is, thus, equal to the sum of the operating expenses, including taxes and fixed charges, associated with the most efficient available plant, where fixed charges include provision for depreciation and a return on the investment required.

Public utility rates can be determined on this basis. The situation in which estimates of costs to be associated with a projected enterprise must be made is not an uncommon one to engineers and accountants. The desire on the part of an entrepreneur to raise capital for a new business necessitates such studies before investors can be interested. Many difficulties arise in connection with estimates of cost made for this purpose. However, it is important to point out that a principle of rate-making for public utilities is at hand.

This principle may be called the "reproduction-cost-of-service principle," and may be stated as follows. The gross revenues which public utilities may be permitted to obtain for the services rendered by them shall be equal, at any given time, to the total cost of rendering equivalent service by the most economical methods in the light of the existing state of the art and market conditions.

This principle is clear and obviates the necessity for determinations of "going concern value"; "accrued depreciation"; findings as to "reproduction cost new"; "aboriginal cost"; "historical cost"; and "original cost"; and finally, the interpretation of "fair value." Of course, it is not intended here to convey the impression that the reproduction-cost-of-service principle is free from limitations. The important advantage of the proposed principle is its clarity. The reproduction-cost-of-service principle cannot be easily misunderstood. Once this principle is generally accepted, the difficulties which are to be expected in its practical application are of a fact-finding nature. On the other hand, the fair-return-on-fair-value principle does not limit disagreements to those relating to "facts" but extends the argument into the realm of legal, engineering, and accounting interpretations of the principle itself.

Scope of the Reproduction-Cost-of-Service Principle

Public utility services comprise five major classes: electricity, gas, water, transportation, and communication. Those who supply these services operate under widely different conditions of competition. Broadly speaking and with due regard to overlapping, these public services may be listed as follows with respect to the decreasing magnitude of the competition to which they are subject.

First, we may consider the transportation companies. Transportation services may be obtained by rail, by road, by water, and by air. Railroads are competing with steamships and barges for the long haul where the time element is not of primary importance. Trucks are strong competitors of the railroads for shorter hauls of freight. Busses and private automobiles compete with the railroads for passenger traffic and airlines compete for the more rapid transportation services. We can conclude, therefore, that the railroads are subject to competition in almost every phase of their service.

Second, the gas companies are subject to competition in a portion of their market. House heating may be obtained by means of coal or oil in addition to gas within a range of costs narrow enough to be competitive. Industrial and commercial consumers of gas have electricity at their disposal as an additional source of energy. Even in the field of home cooking, the higher income consumers have the alternative of electricity. It thus ap-

pears that gas service is non-competitive only in that portion of its market which contains the lower income groups of domestic customers.

Third, the electric companies are less subject to competition because of the inherent complexity of their business. The technical skill required to produce the quality and reliability of service which is standard is beyond any but the largest users of electricity. Of course, large users of electricity may be in a position to construct their own power and light plants but the vast majority of electric consumers are not able to do so. Electricity has many uses to which it can be put by the average consumer. This makes it possible to expand the market by means of inducement rates particularly applicable in the case of a diminishing cost industry. The electric lighting market is non-competitive in the sense that no equivalent service is available. Electric service and gas service may fall in about the same place on the competitive standard used here but the electric industry has decided advantages described above which necessitate closer rate regulation to prevent abuses.

Fourth, we have the communication services—telephone, telegraph, and the postal service. The time element is a major point of difference between telephone and telegraph as a means of communication and the postal service. These classes of service cannot be considered equivalent. Telephone service is generally more convenient as a means of communication, where available, than the telegraph. Therefore, we may conclude that the telephone is not subject to competition in the major portion of its market where rates for alternative services are not widely divergent. In the present state of the art no readily available substitute is equivalent to the telephone.

Fifth and last, water service may be placed in the almost wholly non-competitive group. There is no equivalent service since there is no substitute for water. In some instances, large consumers of water may obtain their own supply but in general no serious threat of competition exists in most communities to the existing major supply.

The purpose of the reproduction-cost-of-service principle of rate-making for public utilities is to introduce a substitute for competition where it does not exist in fact. Competition does exist in the field of transportation and it becomes virtually unnecessary to invent hypothetical substitutes to control permissible revenues of transportation companies. Of course, the reproduction-cost-of-service principle may still be applied in those instances where competition does not obtain. There is no implication, however, that in those cases where regulation of permissible revenues may be abandoned, no regulation at all is required. Questions of discrimination, standards of service, liability, and responsibility of management remain to be settled.

In the case of such public utilities as the telephone and water, the reproduction-cost-of-service principle may not introduce anything new. The service supplied by a telephone company which maintains its equipment and plant in step with progress in the art cannot be duplicated except by identical plant. That is, the most efficient modern plant and the existing plant may be the same. Reproduction cost new as a rate-base plus actual operating expenses would have to be the basis of permissible revenue determination in this instance. Similarly, in the case of a water company reproduction cost new of identical plant would have to be used in the rate determination. In other words, it may be concluded that in many instances equivalent

service can be rendered only by identical plant with equal operating expenses.

To summarize, it may be pointed out that, with notable exceptions, the transportation industry is competitive and may be permitted to maximize its profits. Telephone companies and water companies must be regulated but the principle of reproduction cost new as a rate-base may be used without conflict with the reproduction-cost-of-service principle of rate-making. The permissible revenues of gas and electric companies must be determined under new conditions if the proposed principle of rate-making is to be adopted.

Application of the reproduction-cost-of-service principle will be confined primarily to the electric industry and secondarily to the gas industry. It will be left to the reader to solve by analogy questions which may arise in his mind with respect to other public utilities. The reproduction-cost-of-service principle is a means of determining total permissible revenues to be collected by a public utility from the entire market which it serves. No attempt will be made, therefore, to enter into a detailed exposition of theories concerned with rate determinations for various classes of consumers within a single market. The intention here is to find the total cost of service for a given market, with due regard to its existing characteristics such as load and diversity factors.

Determination of the Reproduction Cost of Service

The rates for utility service to the consumer group under the reproduction-cost-of-service principle have been defined by hypothesis as equal to the total cost of producing the service. The total cost of production in this instance has been further defined as that of production by the most modern efficient producer. Total cost must include all operating expenses including taxes, provision for amortization of the investment and a "fair" or "inducement" return to the investor. The problem of rate determination resolves itself into a threefold one.

First, an analysis of the existing market must be made in order to determine its requirements. These requirements must be met in the most efficient manner. Assuming standards of service at least equal to those prevailing in the market, efficiency may be measured in terms of lowest total cost. This phase of the problem is an engineering one. The function of the engineers is to make comparisons between alternative methods of supplying the service and select the most efficient. This is the phase of rate determination in which the greatest divergence from existing methods appears.

Common practice in rate cases is to relate reproduction cost in terms of plant identical in every respect to that in service. It often happens that equipment in service is no longer manufactured. In these instances manufacturers quote prices on substitute equipment which are used by the engineers in their estimates. However, although the modern equipment is often much more efficient than the equipment in service, no provision is made for this factor. Of course, some provision for obsolescence is made in engineering depreciation studies. Nevertheless, adherence is to identical plant rather than to substitute service.

Under the reproduction-cost-of-service principle, for example, it may be more economical to serve a few isolated consumers of a gas company by butane gas in tanks than to run long pipe lines from a central plant. Oil may be the most efficient source of heat for another consumer. An individual Diesel plant may be

more economical in the case of a large consumer with a particularly poor load factor. The criterion is the service to be rendered to the consumer and the question of approximating plant in service is not of prime importance.

Second, a determination of the "fair" or "inducement" rate of return to the investor must be made. This part of the problem is a financial one. The rate of return must be just high enough to assure a continued flow of capital necessary to maintain service. A guide to the required rate of return may be obtained in the financial markets on the basis of an analysis of the cost of money for similar classes of risk. Determination of the "fair" rate of return involves the problem which arises in present rate cases. Introduction of the proposed principle of rate-making imposes no additional difficulties in this respect.

Third, it must be recognized that total costs of producing the service determined under this theory cannot be made effective immediately in terms of new rates to the consumer. The theory of competition upon which the proposed principle is predicated assumes equality between total cost of production to the most efficient producer and market price in the long run only. A question as to how long is a long run may be raised. Some time lag between new rate determination and its application must be allowed if the competitive prototype is to be followed. In the competitive economy an established producer could continue to obtain his old price until the new producer put his product on the market. Thus, a good objective means of determining the time lag seems to be to let it equal the length of time required for a new entrepreneur to establish his business and put his product on the market. For the electric industry, for example, this period might be somewhere between two and five years, depending on particular conditions in any individual case.

A Hypothetical Application of the Reproduction-Cost-of-Service Principle

Since the reproduction-cost-of-service principle has never been applied in an actual rate case, factual proof of its practicability must be deferred to some future time. For the purpose of illustration, therefore, it is necessary to assume that pertinent facts are made available by existing records of a utility company or by engineering and accounting analysis.

The market for electricity in a large city is used in the example and the annual data for the base year in the rate case are developed by an engineering survey and set forth in Table I.

It is at once apparent that the diversified system peak when taken for the system as a whole is lower than the sum of the peaks of 114,000 and 65,000 kws. for the A.C. and D.C. systems respectively. A possible decrease of 14% in generating capacity requirements is indicated if a unified A.C. or D.C. system

TABLE I. MARKET FOR ELECTRICITY
ANNUAL DATA
BASE YEAR

Classification of Service	Sales in Mwhs.	Simultaneous Peak Demand in Kws.	Load Factor
A.C. domestic	150,000	68,000	.25
A.C. commercial	175,000	50,000	.40
A.C. industrial	25,000	9,500	.30
A.C. System	350,000	114,000	.35
D.C. domestic	25,000	11,000	.25
D.C. commercial	25,000	8,000	.35
D.C. industrial	150,000	49,000	.35
D.C. System	200,000	65,000	.35
System as a Whole	550,000	157,000	.40

with the same load characteristics were to be substituted for the existing system. The engineer must study this situation in order to determine the relative advantages of a uniform A.C. system. This problem involves an analysis of costs to be incurred by changing over customers' D.C. equipment where possible, installation of frequency changes and rotary converters to supply D.C. to large industrial consumers. If the resultant reduction in generating capacity requirements introduces savings which exceed all of the above costs, a net reduction in the cost of service can be obtained.

In addition to the preceding study, it is necessary to survey alternative locations for generating facilities giving due weight to relative costs and advantages. Construction and operating costs related to generating, transmission, and distribution facilities must be estimated on possible alternative bases, keeping in mind reasonable expectancies with respect to load growth and system expansion. The most economical organization which can operate the system must be planned. Finally, the engineers must decide upon the alternative system which can supply service, of equal standard to that which obtains, at the lowest total cost of production.

It is assumed that the engineering study shows that the existing market can be supplied with equivalent service by means of a substitute system. The related cost estimates are as shown in Table II.

In this connection, it may be noted that the increase in required plant investment from $77,000,000 indicated in Table III below is attributable to the inclusion of generating facilities in the substitute system. The utility company under review is a distribution system and purchases all energy. Taxes are assumed to be the same for the substitute as for the existing system, because the amount required by governmental agencies from this source can be expected to remain relatively fixed even if a change in tax basis is required.

TABLE II. ESTIMATED COSTS RELATED TO SUBSTITUTE

Item	Cost
Land	$ 6,000,000
Depreciable utility plant	90,000,000
Working capital	4,000,000
Total Capital Requirements	$100,000,000
Annual operating expenses (excluding fixed charges and taxes)	$ 9,000,000
Taxes	3,500,000
Total Operating Expenses (excluding fixed charges)	$ 12,500,000

At this point a determination of a "fair" rate of return must be made. In order to finance the project funds must be secured in the financial market. The rate of return which must be paid depends on the risk involved and the length of time for which funds are to be invested. The latter can be taken as equal to the estimated average service life of such plant based on experience with similar property. The rate of return may be estimated on the basis of an analysis of similar risks as compared with the forecasts relative to the particular market and plant investment. Assuming that in this case the amortization period is 30 years and rate of return is 6%, the following may be calculated. Reference to annuity tables indicates that 7.26% per annum, an equal annual rate on the initial investment, is equivalent to a return of 6% and an amortization of the original investment over a period of 30 years. The equal annual installment may be called an "annuity" and the rate an "annuity factor."

In the substitute system the total capital to be amortized is $90,000,000

and the annuity thereon is $6,534,000. In addition, a return at 6% on the non-depreciable assets of "land" and "working capital," which total $10,000,000 is required. The latter item equals $600,000 which together with the annuity on the depreciable assets equals $7,134,000.

The total cost of service under the reproduction-cost-of-service principle is determined and the total permissible revenue per annum can be set forth as follows:

Fixed charges	$ 7,134,000
Operating expenses and taxes	12,500,000
Total Permissible Revenue	$19,634,000

In the illustrative example as developed here, the problem is solved. That is, in so far as consumers are concerned, the total amount they are to pay for service is determined. In the base year the actual revenue of the company was $22,000,000, and a reduction of 2.366 ÷ 22 or 10.75% in average rates can be ordered.

The rate reduction cannot be made effective immediately under the proposed principle. The period of time required to raise the necessary capital and construct the plant (which, in the example given, equals three years) must be allowed. This time lag is assumed on the basis of a reasonable allowance of six months to finance the project and two and one half years to construct the system and connect all the consumers. Thus a rate reduction which will reduce total revenues by 10.75%, all other things being equal, may be ordered to become effective three years after the date of the base year in the rate case.

The illustrative example is not complete until the effect of the rate reduction upon the management of the utility company and the investors is shown. The comparative operating statement and balance sheet of the existing company at present and with the substitute as of the base year are given in Tables III and IV.

The operating statement on the basis of the substitute has been developed by using the total permissible revenues as determined in the rate case. It has been assumed that the $2,000,000 depreciation charge is reasonable in the eyes of the management. Since the amount of depreciation actually set up annually by the management does not affect total permissible revenue, there is no point in changing the figure in the second column.

TABLE III. COMPARATIVE OPERATING STATEMENT: BASE YEAR

Item	Present	Substitute
Total revenue	$22,000,000	$19,634,000
Operating expenses including taxes	15,500,000	15,500,000
Available for fixed charges	$ 6,500,000	$ 4,134,000
Interest on long-term debt	1,000,000	1,000,000
Available for dividends and depreciation	$ 5,500,000	$ 3,134,000
Depreciation charges	2,000,000	2,000,000
To Surplus	$ 3,500,000	$ 1,134,000

The second column in the comparative balance sheet shown in Table IV has been developed by capitalizing the amount available for fixed charges over the remaining average service life of the existing plant which would obtain under the new rates in the base year. This was done in the following manner.

The balance sheet shown in the first column of Table IV contains $5,000,000 in the "land" account and assuming that "working capital" equals $2,000,000, a total of $7,000,000 of non-depreciable assets is the result. A return of 6% on this amount equals $420,000 which, when deducted from the $4,134,000 available for fixed charges shown in Table III, leaves $3,714,000 as fixed charges on depreciable property. The sum of the present worths at 6% of this

amount over the remaining life of the existing plant of, say, 22 years equals $3,714,000 times 12.042 or $44,724,000. The original cost of depreciable property is $72,000,000. The depreciation reserve necessary to reflect the accrued depreciation is, therefore, $72,000,000 less $44,724,000, or $27,276,000.

In the restated balance sheet (Table IV) the deficiency in the reserve for depreciation is made up by a transfer from surplus. The retirement reserve then may properly be called a depreciation reserve.

TABLE IV. COMPARATIVE BALANCE SHEET: BASE YEAR

	Present	Substitute
Assets		
Land	$ 5,000,000	$ 5,000,000
Utility plant	72,000,000	72,000,000
Current assets	5,000,000	5,000,000
Miscellaneous assets	1,000,000	1,000,000
Suspense	500,000	500,000
Total Assets	$83,500,000	$83,500,000
Liabilities		
Common stock	$22,500,000	$22,500,000
Long-term debt	25,000,000	25,000,000
Current liabilities	3,000,000	3,000,000
Advances from affiliated companies	3,000,000	3,000,000
Retirement reserve	1,500,000	27,276,000
Miscellaneous reserves	1,000,000	1,000,000
Surplus	27,500,000	1,724,000
Total Liabilities	$83,500,000	$83,500,000

The amount available for dividends (that is, $1,134,000) is 5.0% of the balance sheet value of common stock of $22,500,000 and may be considered a "fair" rate of return to the stockholders in the light of the security of their investment given by the surplus of $1,724,000 and the reserve of $27,276,000. Furthermore, the elasticity of demand for electricity combined with the "diminishing cost" character of the industry results in other advantages to the investor. The rate reduction when effective can be expected to increase sales which in turn offset the loss of revenue to some extent. Thus the unreduced revenues during the period of time lag and the possibly higher than "rate-case" revenues earned thereafter permit the management to rebuild the reduced surplus shown in the restated balance sheet (Table IV). Thus the consumer benefits from lower rates which, in turn, can be expected to increase the use of electricity since the demand is elastic. The stockholder is not misled by balance sheets which reflect fictitious "book values" and obtains a return which he must of necessity consider a "risk" return comparable to that which he would obtain in non-regulated competitive industry. The management cannot be unjustly accused of "imprudent" policies, although the way is open for the stockholder to get rid of such management which does not exhibit the normal amount of foresight in the conduct of the business.

The findings of the engineers in the rate-case should offer invaluable aid to the management by pointing out possible improvements in the system. For example, in the illustration above, a large portion of the rate reduction is attributable to the assumption that the existing utility system which purchases all its energy requirements can reduce costs by building its own generating facilities. The findings described may offer a basis of obtaining energy from the generating company at a lower cost without actually requiring the management of the utility in question to construct its own generating plant.

Comparison of the Reproduction-Cost-of-Service Principle with Other Leading Rate-Making Principles

It has been previously pointed out that the fair-rate-of-return-on-fair-value basis of rate-making is entirely too controversial to merit its being called a principle.

This basis has been so thoroughly criticized during its long history of drawn out and expensive litigation in rate cases that no further details are required here. It cannot be denied that fair value is an indeterminate base and can never settle the issues involved.

The failure of the fair value doctrine to satisfy the needs of regulation of public utilities has led many students of the subject to offer the "prudent investment" principle as a practical solution to the problem. Generally speaking, the prudent investment principle is postulated on the premise that a fair rate of return is to be allowed on the capital "prudently and honestly" invested in the property devoted to public use. Superficially, at least, this principle appears to have clarity in its favor. However, upon closer study several questions arise which are not answered by the general statement of the prudent investment theory.

No clear distinction is made between capital investment which has been made by the present utility company, often called "historical cost," and the investment which may have been made originally when the plant had been constructed, sometimes called "aboriginal cost." Similarly, no specific handling of the troublesome depreciation problem is indicated. It seems logical to consider the rate-base under the theory of "prudent investment" as the "prudent historical" cost less the amounts previously collected from consumers in the form of depreciation or amortization charges as represented by the appropriate book reserves. Nevertheless, this is but one interpretation of the general principle. Much can be said in favor of "aboriginal cost" as a basis. The actual depreciation charges which a particular company may have made in the past may not be "prudent." For instance, today most students of the subject will not admit that "retirement expense" accounting, heretofore practiced by many utility companies, is a sound policy. The prudent investment theory has received valuable but not universal support. Utility companies have been opposed to this theory, apart from its constitutional limitations, because it fails to recognize what utility managements may be inclined to call their "property rights." The position of utility managements is in jeopardy under this principle.

Under the prudent investment theory a commission may very likely find relatively large amounts recorded in the asset account which in its eyes represent "imprudent investment." Should a requirement to write off such amounts be enforced, it is likely that the book value of stocks may be seriously impaired.

Managements, therefore, will never agree that any investment which they have made in the past has been "imprudent" because of the threat of stockholders' suits, and will prolong litigation to the utmost of their ability. The tendency of regulatory bodies to attempt to wrest every advantage from the utility companies under this principle has been an important factor in accounting for the companies' reactions. It is not difficult for regulatory bodies, under the theory of prudent investment, to limit the rate-base in the case of an extremely advantageous expenditure from an economic standpoint to the actual expenditures while reducing the amounts of uneconomic or economically unsound expenditures on the ground of imprudent investment. On the other hand, prudent investment for a company developed in times of high construction costs may result at some later date in a rate-base higher than that indicated by the prevailing price level. It may not be possible to justify high rates in times of a low general price level. Consumers may not

be willing to pay the high rates indicated by the prudent investment theory when their incomes are relatively low. The advent of actual competition may make it impossible for the company to obtain the rates indicated by the prudent investment theory and a change in the basis of rates will be forced irrespective of this rate-making theory.

The failure of all previously expounded principles of rate-making to find universal acceptance has led to this attempt to exploit fully the possibilities of the reproduction-cost-of-service principle. This principle is not an attempt at a compromise "rule-of-thumb" which may work in practice under universal acceptance. The proposed principle attempts to fit into the competitive framework within which the capitalistic economy is built. The reproduction-cost-of-service principle is desirable apart from the reasons stated above. Under this principle rates for public utility services can be made subject to the same conditions which obtain under a capitalistic economy with respect to other commodities. Prices for utility services will rise and fall in direct correlation with the general price level and changes in income of consumers. In addition to these changes, progress in the arts will benefit consumers by causing a reduction of rates in the long run. All this may be accomplished without at any time justifying a public utility's claim that it is treated inequitably in the light of the general treatment of private enterprise under a capitalistic system.

The disadvantages of the reproduction-cost-of-service principle lie in the possible difficulties which may be encountered in its practical application. Past experience reveals that the expenses of a rate case may be divided into two major parts. One part is devoted to "fact finding," whereas the other is spent on the settlement of the case before commissions and in many cases before the courts. Although no statistical data are available as to the relative proportions of time and money expended on these two parts, it is safe to state that a considerable portion is spent on the latter. Furthermore, no inconsiderable portion of the time of engineers and accountants whose main function is "fact finding" is spent wastefully in preparation of data for court hearings. Resort is often made to quibbling about "facts" in order to discredit opposing witnesses when the true disagreement is not with the "facts" per se but with the opposing principles. A public utility company may attack the testimony of a commission witness as to original cost not because it deems the estimate of original cost to be in substantial error but because original cost is substantially different in the case at hand from reproduction cost. Similarly, the commission may find fault with the reproduction-cost figure placed in evidence by the company because it is far in excess of the original cost figure.

It has been the practice of the courts to settle cases before them in terms of a compromise somewhere between the various figures submitted even though such figures may be in error and based on incompatible principles of rate-making. This had led opposing parties to "lean backwards." As someone has aptly put it, "In a 'tug-of-war' the one who pulls backwards the hardest is most apt to win."

It appears, therefore, that if an equitable principle of rate-making can be established which will find universal acceptance and support by the courts, a tremendous saving in time, energy, and money now devoted to litigation in rate and accounting cases can be saved. The support of the courts for the proposed principle should not be difficult to obtain

since the fair value doctrine can be modified to a point where it will be equivalent to reproduction cost of service by consideration of substitute plant rather than identical plant in reproduction-cost estimates. There is a great deal more hope that engineers and accountants can find common ground in "fact finding" than that such agreement can be reached on incompatible or, to say the least, indeterminate principles.

Conclusion

The development of the reproduction-cost-of-service principle of rate-making presented here has of necessity been limited in scope. No doubt innumerable questions will arise in the minds of students of rate-regulation. Some of the major points which may be raised in connection with the practical application of the theory are also major obstacles to be overcome if the principle is to find acceptance.

A serious question which cannot be answered a priori involves the engineering studies. Engineering estimates of costs of large projects made by several individuals are usually found to vary widely even where the specifications to be followed are agreed upon in advance. The best proof of this statement may be found by a comparison of bids on any construction job. The estimated costs of engineering projects are usually at some variance with actual costs incurred upon completion of such undertakings. In the case of the proposed principle of rate-making a more serious limitation appears. Not only are engineering estimates likely to vary for the reasons stated above but the specifications describing the most economical utility system can be expected to be in disagreement.

Another limitation of the theory is the lack of objectivity in determining a "fair" rate of return and period of amortization to be used in finding the annuity rate which determines the annual fixed charges. The amount of return and rate of amortization may have a greater bearing on the total permissible revenues than the selection of the most economical system which can supply the service.

The cost of the rate case is another important consideration. The detailed engineering studies required to solve the problem under the reproduction-cost-of-service principle must be more costly than ordinary reproduction cost new determinations, for example. It is not economically sound nor physically possible to determine rates under the proposed principle at frequent intervals. A mechanism must be developed by means of which rates might be adjusted without comprehensive and detailed rate cases with concomitant costs.

It appears, therefore, that the simplicity of the proposed principle carries with it the penalty of costly and complex methods of practical application. Thus the main question is resolved into one of weighing the possible net gains and the net disadvantages as compared with the present practice in rate cases. The net advantages of the reproduction-cost-of-service principle are its simplicity as a postulate and the reasonableness of the approach to the competitive framework under which the capitalistic economy functions. On the other hand, the disadvantages and limitations described above are serious obstacles only if nothing short of perfection is acceptable.

The question of engineering disagreements on cost cannot be lightly waived. However, engineers may find common ground upon which they can reach acceptable compromise solutions. After all, under the reproduction-cost-of-service principle, the engineers are settling one

problem common to each one. They do not have to reconcile some combination of "original cost" and "straight-line depreciation" as a measure of "fair value" with some other hybrid made up of "reproduction cost new" and "observed depreciation." Even in the case where engineers cannot ultimately agree, some justification still exists for the courts' common, although not admitted, solution of taking an average of the figures submitted by opposing parties. The average of two estimated costs of service has some meaning, whereas the average of two determinations of fair value based on entirely different concepts of value has no meaning. It seems that this limitation of the proposed principle contributes nothing to the net disadvantages in its practical application.

The questions of a "fair" rate of return and an amortization period are no more serious than those encountered in present rate cases. Here, once more, no added disadvantages are encountered in comparison with present practice in rate cases.

The cost of a rate case under the reproduction-cost-of-service principle may be high. However, such costs will probably not be excessive in the light of existing procedures. Although the engineering studies can be expected to be more costly than those pursued in estimating reproduction cost new or original cost, there is considerable basis for hope that the total cost of a rate case may be lower. A reasonable expectation under the proposed principle is that legal and accounting costs will be reduced considerably. In those cases where engineers can reach an agreement, no legal expenditures are required, and, even in those instances where courts must settle debatable issues, the number of such cases and their magnitude will be probably much smaller.

The frequency of rate-determination necessary to maintain the proposed principle need not be greater than at present. Only major changes in price level, cost of money, or state of the art of producing utility services can materially affect the "total permissible revenue." Periodic engineering investigations of a general nature may easily reveal the necessity for a change in rates. The management may easily see to it that the interests of the investors are protected while the public utility commissions safeguard the consumers. Further rate adjustments of a minor nature may be made from time to time, between major changes, by means of a plan similar to the "Washington Plan." Upper and lower limits on the surplus account changes during the period between rate cases may be agreed upon. When the surplus account falls below some minimum necessary to secure the investors against undue risks, rates might be adjusted upward. On the other hand, a rapid increase in the surplus account ought to be followed by rate reduction. In both instances, however, changes in the surplus account must be intimately related to maximum and minimum dividend payments.

In conclusion, therefore, it appears that the reproduction-cost-of-service principle has many advantages which should make it of interest to public utilities and consumers. The disadvantages in practical application cannot be considered a priori to be insurmountable. Without further proof, it can be said safely that the proposal is worth a trial. The writer hopes that the principle described here will receive a fair trial at some future date. The only unbiased test of the hypothesis presented in this paper must be postponed until then.

War Housing:
The Emergency Fleet Corporation Experience

By JOHN L. TIERNEY*

TWENTY-FOUR years ago as the Nation at war was confronted with the task of marshalling its man power and productive capacities for the duration of the conflict the housing of industrial workers became an urgent problem. In addition to the required acceleration of all forms of activity incident to the war effort, a vast increase in American shipbuilding facilities was recognized as one of the foremost prerequisites of victory. Those concerned with operation of the industry soon realized, however, that the problem of housing was inextricably interwoven with the problem of production, and that the latter could not go forward satisfactorily without high standards of health and efficiency among the workers. As a necessary part of the ship-construction program, the work of supplying living quarters for employees in the industry represented the first American experience in the field of defense housing.

Then, as now, new methods had to be developed to deal with the problem. In order to encourage the required expansion in the industry President Wilson called upon the newly created Shipping Board to activate the shipbuilding program.[1] "The Emergency Shipping Fund" provision of the Urgent Deficiencies Act of 1917 had conferred upon the President far reaching authority to requisition, construct, and operate ships.[2] In selecting the means for executing these powers he delegated the ship-construction functions to the Shipping Board, which in turn organized the Emergency Fleet Corporation for this particular task.[3] The subsequent program, as carried out by these agencies, furnishes a unique example of a transfer of resources, capacities, and energies to the task of winning a war; and the extent to which it contributed to the victory which was ultimately achieved is attested in the annals of the conflict.[4]

The great influx of men into the shipbuilding centers to man existing plants, to construct new yards, and to install necessary machinery resulted in an enormously increased demand for living accommodations in many localities. Early in 1917 reports indicated that the necessary labor force could not be obtained primarily because of the housing shortage.[5] These reports showed the ex-

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The opinions expressed herein are those of the writer as an individual only, and are not necessarily the official views of any federal agency.

[1] The U. S. Shipping Board was created a year earlier (in 1916) as a peace-time agency of the Federal Government to regulate shipping and promote development of an American Merchant Marine (39 Stat. 728).

[2] 40 Stat. 182.

[3] The U. S. Shipping Board Emergency Fleet Corp. was incorporated under the laws of the District of Columbia on April 18, 1917, with a capital stock of $50,000,000.

[4] A realization of the gravity of the need for shipping facilities indicated that additional capacity of several million tons of new production would be needed annually, whereas during the best shipbuilding year prior to 1916 less than 200,000 gross tons of ships had been produced in American shipyards. For statistics of production during the war and post-war period, see *Lloyds Register of Shipping*, Vol. II (1939–40), Table No. 13, Statistical Tables. The original Fleet Corporation program called for a total of 3,270 ships of 18,407,276 dead weight tons; after hostilities ceased, much of the scheduled construction was cancelled, but the program as later completed produced 2,311 ships of 13,627,311 dead weight tons (6 *Report*, U. S. Shipping Board (1922) 156–8).

[5] Inability to maintain a stable labor force was re-

(*Footnote 5 continued on page 152*)

tremely congested conditions produced in the major cities along the Atlantic Coast where new work opportunities had caused a phenomenal influx of population. Saturation of the existing supply of housing, utilization of garages and other buildings for living accommodations, and occupancy of sleeping quarters in shifts were said to have resulted in extremely unhealthful living conditions. Surveys showed that a large percentage of the workers in many plants resided miles from the scene of operations and were dependent upon busses and trains for conveyance over excessively long distances. Reports appeared over and over again of men going from one shipyard to the next seeking to locate satisfactory housing. A survey of the situation convinced the Fleet Corporation investigators and officials that production of ships in many cases necessitated simultaneous production of living quarters for the workers.

Federal Legislation and Appropriations for Shipyard Housing

In April, 1917 on our entrance into the war it was recognized that financial aid from the Federal Government would be necessary if the required housing were to be built. Rising building costs had discouraged private building operations, since many lenders were unwilling to take the risks of possible deflation in property values after the war. The supply of workers entering into the building trades had been drastically curtailed as a result of defense activity and the drafting of men into the army. In addition, financial institutions found that the ordinary supply of funds for mortgage lending was diverted to the purchase of Liberty Bonds, and into the vastly more profitable opportunities created by the war-supply industries. Shipbuilding companies which normally would have engaged in at least a minimum of "company" housing were discouraged from doing so because of demands for expanded plant facilities. Finally, the imposition of priorities, together with the tie-up of materials through freight-traffic bottlenecks, were additional influences which made it impossible for private building to meet the situation.

It was estimated that $35,000,000 would be necessary to supply the most urgent housing needs. Later, however, this amount was found to be inadequate and the Shipping Board made a request to Congress for an appropriation of $50,000,000. This amount was provided for in the act passed on March 1, 1918;[6] it was further increased to $75,000,000 by the act passed July 1 of the same year.[7]

The chief provisions of this legislation authorized:

1. Acquisition of the necessary land for construction of houses through purchase, lease, or condemnation;
2. Construction of houses "and other necessary and convenient facilities";
3. Sale or lease of such houses upon such terms or conditions as the Corporation might determine;
4. Requisition of land, houses, and their fixtures upon payment of just compensation. If this amount were unsatisfactory to the owner, he should be paid 75% of the

(*Footnote 5 continued from page 151*)
flected in an extremely abnormal rate of labor turnover; in an attempt to cut down this rate, a uniform wage policy was established in 1918 for all yards working on Fleet Corporation contracts. Since a high percentage of the jobs required skilled workmen, an extensive training program was undertaken. As an additional aid in the task of obtaining the necessary men, all workers employed on Fleet Corporation ship-construction contracts were granted a blanket deferment from the World War draft. The problem of labor supply seems to have been aggravated considerably by concentration of the yards along the Delaware River in a region where the War and Navy Departments had also placed extensive contracts.

[6] 40 Stat. 438.

[7] *Ibid.* at 651.

amount and be allowed to sue the United States for the balance.

The legislation declared that the power to purchase, requisition land or buildings, and construct houses should cease upon termination of the war.

The legislation prohibited use of the ordinary form of cost-plus contract in the following language:

"... Nor shall any contract for construction be entered into which provides that the compensation of the contractor shall be the cost of construction plus a percentage thereof for profit, unless the contract shall also fix the reasonable cost of such construction as determined by the United States Shipping Board Emergency Fleet Corporation and provide that upon any increase in cost above the reasonable cost so fixed by such Board, the percentage of profit shall decrease as the cost increases in accordance with a rate to be fixed by said Board and expressed in the contract."[8]

The act further provided, "That nothing herein contained shall be construed to prevent said board from contracting for the payment of premiums or bonuses for the speedy completion of the work contracted for."[9]

These provisions are of particular importance because of the limits they imposed upon the board, as to the types of construction contracts which it was permitted to authorize, as is explained more fully herein.

Steps Taken to Avoid Needless Construction

In executing the authorized program, every effort was made by the Transportation and Housing Division of the Fleet Corporation to avoid reckless overbuilding which would jeopardize both private and government housing investment after the war. In order to ascertain the need for housing, a detailed questionnaire was sent to each of the shipbuilding companies to gain information which would aid the Corporation in administering the loans in aid of building. In addition, an extensive field investigation was made in each community where a deficiency in housing was alleged to impair the production program at the shipyards. These investigations were made either at the request of the shipbuilder, the Fleet Corporation officials, or by the Transportation and Housing Division on its own initiative.

In order to provide the necessary workers at many plants it was recognized that improvements in transportation would in many cases offer a more economical means of alleviating the production problem than would the building of additional housing. This was made possible through a supplementary appropriation of $20,000,000 for loans to transportation companies.[10] In addition, an earlier act passed on April 22, 1918 enabled the Corporation to requisition transportation systems for the conveyance of shipyard and plant employees.[11] This act, like the enabling legislation for housing, permitted the Corporation to take possession of the property immediately, with just compensation as determined by the President, and by an initial payment of 75% of such sum, but reserved to the owner the right to sue the United States for the balance.

Loans for transportation extensions and improvements were made to various companies at an interest rate of 5%. The companies were responsible for the construction work and the Fleet Corporation advanced the full cost. The transportation companies agreed to repay the loan in five equal annual installments at the end of the war on the basis of the value of the particular facilities built, but such a post-war valuation was not to be less than 75% of the cost of the work

[8] *Ibid.* at 439.
[9] *Ibid.*
[10] 40 Stat. 651.
[11] *Ibid.* at 535.

done. As security for the advances, the Fleet Corporation retained title to all rolling stock and equipment purchased with the borrowed funds until payment was made in full.

The progress of this program, as reported by the Fleet Corporation at the end of the 1918 fiscal year, showed that 66,000 workers had then been provided for by the transportation improvement program.[12] In April, 1919 over 125,000 men were being thus accommodated.[13] These figures clearly indicate that this accomplished much toward eliminating the labor-supply bottleneck in the shipyards.

In addition to these loans for transportation improvements it was found necessary to subsidize transportation fares in many areas where long commuting distances involved an undue financial drain upon the workers. This was done particularly in the Philadelphia area where all fares in excess of 16 cents per day were absorbed by the Fleet Corporation.[14] This program cost several thousands of dollars monthly during 1918 in that area alone.

In carrying out the transportation program, the Fleet Corporation spent approximately $12,000,000 of its $20,000,000 appropriation, and the balance was returned to the Treasury.[15] Loans to various transportation and power companies amounted to $8,436,816; the balance of the expenditures were made for direct improvements by the Corporation itself, and for fare subsidies. Since much of the amount loaned for improvements was eventually repaid, this method of supplying workers in the various shipyards resulted in small losses compared to those realized from final disposition of the housing projects.[16]

In some cities houses were requisitioned under authority of legislation to provide urgently needed accommodations and to prevent profiteering by landlords, as well as to insure continuity of occupancy by shipyard workers. Thus in Philadelphia the Fleet Corporation requisitioned 436 houses which were under construction by private contractors.[17] In other cities it attempted to work out compromise agreements between landlords and tenants, if rents were rising beyond the level which the shipyard workers could reasonably be expected to pay. The Corporation reported 3,050 of these adjustment cases before the end of the war.[18]

The Methods of Financing

The financial plans for utilizing the appropriations for housing may be broadly classified into three types:

1. Complete ownership by the Fleet Corporation of land, buildings, and equipment;
2. Loan by the Corporation to a realty company secured by a mortgage, with a con-

[12] 2 *Report*, U. S. Shipping Board (1918) 146. This report estimated that 184,000 workers eventually would be accommodated through transportation changes. The records of the Fleet Corporation show that the following types of improvements were made in executing the transportation program: (1) purchase of street-cars; (2) financing of street railway extensions; (3) financing of track changes and loops; (4) expansion of railway power plant facilities; (5) initiation of steamboat service; (6) placing special steam railroad trains in service; (7) improvement of street railway and steam railway schedules; (8) staggering working hours to permit more economic use of transport facilities.

[13] *Report*, Director General Charles Piez to Board of Trustees U. S. Shipping Board Emergency Fleet Corporation (Washington: Government Printing Office, 1919), p. 194.

[14] Records of the Passenger Transportation and Housing Division of the U. S. Shipping Board Emergency Fleet Corporation, Commerce Section, The Archives of the United States.

[15] 6 *Report*, U. S. Shipping Board (1922) 206.

[16] Recovery from the transportation-improvement loans as of the end of the 1923 fiscal year equalled about 40% of the amount advanced; a small balance was still outstanding. (7 *Report*, U. S. Shipping Board (1923) 142.)

[17] 3 *Report*, U. S. Shipping Board (1919) 78.

[18] *Ibid.*

tribution of land by the shipbuilder, with provision for post-war reappraisal and write-off of not more than 30%, and without a guarantee of repayment by the shipbuilder. This plan was utilized in most operations and was known as the "Uniform Plan";

3. A loan by the Corporation to a realty company secured by a mortgage and a guarantee by the shipbuilder of repayment of the principal and interest, with provision for a maximum write-off of 30%.

The first plan was not the usual one adopted, although it was generally necessary where the facilities promised at the outset to be temporary, or where the quarters were to be built for unmarried workers.[19] It was utilized, however, in two of the single-family projects where satisfactory sponsorship of the shipbuilders could not be obtained.

The "Uniform Plan" was the usual one adopted since the shipbuilder was generally unwilling to make the loan for housing purposes a lien upon his entire plant. It permitted them to use realty subsidiaries in order to avoid liability for post-war housing losses, and shifted the greater part of the risk to the government because of the ultimate low recovery on the Emergency Fleet Corporation loans.

The major provisions of this plan may be summarized as follows: The shipbuilding company was required to make the necessary land available and to insure the title through a responsible company. A subsidiary realty company was then organized which acquired title to the land and in exchange issued its stock to the shipbuilder on the basis of the cost price of the land. The shipbuilder then agreed with the realty company through an "Advance Money Mortgage Agreement" to advance or cause to be advanced all further cost of the development. The Fleet Corporation agreed to advance any funds which the shipbuilder was unable to supply. The shipbuilding company agreed to guarantee completion of all undertakings of the realty company, except repayment of the loan; as collateral to this guaranty it assigned the stock which it received in exchange for the land, but reserved the voting rights therein. The realty company was then required to execute its bond for all advances payable on or before 10 years with semi-annual interest at 5% and to secure all advances by a blanket mortgage.

A tripartite agreement known as the "Operating Agreement" was subsequently executed by the three parties to the contract which, in addition to assigning the mortgage contracts to the Fleet Corporation in consideration of its agreement to advance all further costs of construction, contained important types of restrictions designed to insure that the projects developed would be operated in the public interest. It was decided that the lending of government money necessitated contractual provisions of this kind in order to avoid the possibility of a charge that the Fleet Corporation was fostering real estate speculation.

This agreement stipulated that the realty company would not increase its capital stock without prior approval of

[19] This plan was used for all housing to serve the Hog Island Shipyards, Philadelphia, Pa., at Bristol, Pa., and at the St. Helena project, Baltimore, Md. A variant of this plan was used for the dormitory project at Essington, Pa., for the Westinghouse Electric and Manufacturing Co. That company conveyed the land to the Fleet Corporation for a nominal consideration. The Fleet Corporation paid the cost of constructing the dormitories and the Westinghouse Co. agreed to operate them during the war and for six months thereafter. It was agreed that all the net profits up to an amount equal to 5% on the total investment were to be paid to the Fleet Corporation, and all in excess was to be shared equally. The Westinghouse Co. agreed, however, to save the Fleet Corporation harmless from any deficiency resulting from operation, and further agreed to provide certain utilities.

the Fleet Corporation. It further provided that the revenues of operation were to be applied to payment of certain specific items in the following order:

1. Taxes
2. Insurance premiums
3. Such maintenance, operation, and repair items as were approved by the Fleet Corporation
4. Interest on the mortgage principal.

After these items were met, any excess earnings up to 5% annually could be paid as a dividend on the capital stock, but no dividends in excess of this percentage were permitted until the mortgage was completely discharged. Dividends were limited during the life of the project rather than during the life of the mortgage only, in an attempt to prevent exploitation should the mortgage be prepaid. Although the possibility of enforcing such a provision after the mortgage was discharged might have been questioned, it probably would have been upheld if it had ever been litigated. This provision, although of importance as a safeguard to the public interest, proved to be unnecessary during the period of the war because it was recognized that rentals sufficient to permit even the 5% limited dividend to be earned could not be charged.

The "Operating Agreement" further provided that after the mortgage was discharged no dividends in excess of 6% per annum might be paid, but that the earnings in excess of that amount, which would otherwise be eligible for dividend payments, might be utilized in either of the following ways:

1. In the improvement of the property of the realty company;
2. An amount not in excess of 2% per annum of the original amount of its capital stock might be utilized to retire its capital stock, until such stock outstanding was reduced to 10% of the original issue. The balance of its earnings in any one year was to be utilized in property improvements.

No sales or leases of land or buildings could be made to persons other than those employed by the shipbuilder until six months after conclusion of the war (as determined by Presidential proclamation); any deeds given in sale of properties were required to contain similar restrictions in the form of covenants running with the land until six months after the end of the war. No more than one lot improved with buildings could be sold to a single purchaser without prior approval of the Fleet Corporation. All leases were required to contain provisions to permit cancellation if the employee ceased to work in the shipyards, or if he subleased or assigned to a non-shipyard worker.

The Fleet Corporation retained the right to fix the prices at which the properties could be sold or leased until the mortgage was paid in full. In accordance with this provision it was stipulated that the realty company should not be required to sell any of its land at less than cost plus the cost of improvements, and that it should not be required to lease any of its land and property at an annual rental of less than 10% of the cost of the land plus improvements, less an allowance for depreciation.[20] However, it was early recognized that rentals to permit such earnings could not be obtained.

It was further stipulated that, in the event of sale and release of individual properties from the blanket mortgage, the purchasers might elect to leave 30% of the value of the individual property under mortgage, and that this amount

[20] Such depreciation rates were determined in accordance with the following schedule:
(1) 1% per annum of the cost of any buildings rated fully fireproof;
(2) 2% per annum of the cost of any building, with exterior wall of brick, stone, concrete, or other masonry construction;
(3) 3% per annum of the cost of any buildings of frame construction.

or any lesser amount might be cancelled after the war, if an appraisal of the property showed a shrinkage in value. This provision was intended to give individual home purchasers write-off benefits similar to those contemplated for the realty companies, as is explained more fully later.

The Fleet Corporation was given power to impose restrictions upon the use of any part of the property covered by the mortgage, and these restrictions ran as covenants with the land; it was granted the further right to determine and control utilization of any part of the property for business purposes. Finally, the Fleet Corporation was given power to control the policies of the realty companies which affected the health, welfare, and housing conditions of the shipyard employees and their families.

The third type of financing arrangement, or "Guarantee Plan," which provided that the shipbuilder should secure the Fleet Corporation against non-payment of principal and interest, was utilized in four of the developments.[21] However, analysis of the financial records of the Fleet Corporation does not show that this guarantee was ever effectual or that its enforcement was ever practical.

These financing contracts represented distinct innovations as far as governmental aid to housing was concerned, and were developed under the stress of war pressure in order to alleviate the production problem. These plans enabled the shipbuilders to obtain the necessary housing with a minimum amount of risk on their part; the most that the various companies ventured was the cost of the land. Table I shows the percentage of land cost to total cost for various projects and the average percentage of land cost to total cost for all projects. The latter figure (3.58%) represented the average extent of the loss to the various shipbuilders when it proved impossible to obtain rentals sufficient to enable the companies to repay their loans and interest to the Fleet Corporation, or to pay any dividends upon the capital stock.

Permanent vs. Temporary Construction

The decision as to whether the housing to be constructed should be permanent or temporary in character proved to be a difficult one to make. The only previous experience of the Federal Government in the housing field was in the construction of cantonment facilities for the army, and the proposal was made that construction of that type might be utilized to house the shipbuilders. However, strong opposition to such a policy soon developed. A large group with powerful support from labor organizations advocated permanent dwellings, and others with some support from within the Shipping Board tended to favor a temporary form of construction. In labor groups, a voice in support of permanent construction was that of Samuel Gompers, then President of the American Federation of Labor, who urged upon the President and members of the Shipping Board the adoption of a policy of financing permanent construction exclusively for the shipyards located near the more stable communities.

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[21] A somewhat different plan was that utilized in the construction of the hotel at Chester, Pa., to house unmarried workers for the Chester Shipbuilding Co. In this case the shipbuilder conveyed the land to the Fleet Corporation without compensation. The Corporation agreed to advance the necessary funds for construction, and the shipbuilder agreed to lease the structure at a net rental equal to 5% of actual cost of the building. In addition, the shipbuilder agreed to purchase the building within two years after conclusion of the war at its then appraised value, but at no less than 75% of its actual cost. Incident to this repurchase transaction the shipbuilder was to have the land reconveyed to him without cost.

Much consideration seems to have been given to this question by all opposing interests. Speed and economy were the arguments advanced in favor of temporary construction; the almost certain loss of the entire cost in the post-war period was urged against it, together with the uncertainty as to whether workers with families would accept facilities of this type. The merits of permanent construction were thought to be based upon the assumed need for such facilities at the end of the war, and the estimate that ultimate losses from disposition of such structures would be small. The policy as it finally evolved resulted in the determination that permanent units should be constructed for families; with certain exceptions, it was decided to build temporary facilities for the single men.[22]

[22] The hotels constructed at Camden, N. J., Chester and Bristol, Pa., Vancouver, Wash., and Clyde, Calif. were considered permanent construction.

TABLE I. HOUSING PROVIDED, COST DATA, AND RECOVERY AS A PERCENTAGE OF COST FOR HOUSING PROJECTS: U. S. SHIPPING BOARD EMERGENCY FLEET CORPORATION[a]

Project Location	Family Units Constructed	Accommodations for Unmarried Workers in Dormitories and Hotels	Total Number Housed	Average Cost per Cubic Foot of Houses[b]	Land Cost as a Per Cent of Project Cost	Utility Cost as a Per Cent of Project Cost[c]	Total Cost of Project	Selling Price	Recovery as a Per Cent of Cost
Baltimore, Md.[d]	827	—[f]	2,948	.38	2.40%	11.44%	$ 5,401,423	$ 2,817,500	52.16%
Bath, Maine	109	72	290	.55	1.70	15.15	1,449,969	112,000	7.72
Bristol, Pa.	532	2,750	3,778	.19	2.78	17.50	6,915,523	855,653	12.37
Camden, N. J.	1,637	38	3,312	.40	2.07	19.02	11,605,200	3,946,245	34.00
Chester, Pa.	1,153	292	2,722	.44	5.48	24.70	5,764,757	2,150,000[i]	37.30
Clyde, Calif.	103	150	356	.29	12.66	7.00	530,689	300,000[j]	56.53
Cornwells, Pa.	—[e]	—[e]	300	—	—	—	8,800	—	0.00
Essington, Pa.	200	641	1,041	.50	1.27[h]	.92	2,050,133	466,000	22.73
Gloucester, N. J.	448	—[f]	896	.38	3.08	22.21	3,479,771	1,937,950	55.69
Groton, Conn.	95	204	433	.28	5.14	29.08	955,895	165,000	17.26
Jacksonville, Fla.	158	—[f]	316	.24	6.09	24.98	968,305	350,000	36.15
Lorain, Ohio	240	—[f]	480	.44	3.70	13.67	1,871,490	540,215	28.87
Manitowoc, Wis.	100	300	500	.28	2.26	18.95	679,038	310,000	45.65
Newburgh, N. Y.	197	—[f]	374	.43	1.78	3.47	1,411,372	325,000	23.03
Newport News, Va.	803	—[f]	1,367	.43	1.54	12.01	5,261,026	1,100,000	20.91
Philadelphia, Pa.	1,989	2,042	6,020	.19	8.28	14.41	8,944,469	6,645,960	74.30
Port Jefferson, N. Y.	9	206	224	.34	4.47	8.26	268,398	75,000	27.94
Portsmouth, N. H.	278	409	965	.43	1.06	21.65	2,300,000	347,595	15.11
Quantico, Va.	12[g]	—[f]	24	.14	—	7.31	13,596	—[k]	—
Vancouver, Wash.	20	500	540	.31	9.66	18.25	385,319	162,500	42.17
Wilmington, Del.	510	—[f]	1,020	.45	2.35	13.46	5,189,616	1,573,600	30.32
Wyandotte, Mich.	79	—[f]	158	.30	12.20	13.41	508,716	214,100	42.09
Total	9,499[l]	7,604	28,064	.33	3.58	16.28	$65,963,505	$24,394,318	36.98

[a] Source: *Units constructed* from 3rd *Annual Report*, U. S. Shipping Board (1919) 177; *cost per cubic foot, utility cost, and land cost* from the Records of the Emergency Fleet Corporation, the Archives of the United States; *data on total cost and selling price* from the Hearings before the Select Committee of the House of Representatives, 68th Cong., 1st Sess., on H. R. 186, Part C, p. 2480.
[b] Exclusive of land and utilities.
[c] Utilities comprised water-supply service, sewers, streets, sidewalks, curbs, gas and electric service.
[d] Dundalk and St. Helena projects.
[e] Tents.
[f] None other than those provided in single-family units.
[g] Cottages.
[h] Land for dormitories donated.
[i] Chester hotel transferred through set-off of shipbuilder's claim; value of claim estimated at $450,000 by EFC.
[j] Project transferred through set-off of shipbuilder's claim. Amount shown in recovery represents EFC value of claim.
[k] Transferred to Army.
[l] Total includes six boarding houses.

The Construction Program

The legislation authorizing the housing program permitted the condemnation of land for housing developments, if necessary. This was not, however, the typical method of getting the necessary land, since the agreements with the shipbuilders provided that they should contribute it in exchange for stock of a subsidiary realty company organized to carry out the housing development.

Local governments and public utility companies financed many improvements such as schools, gas, electricity, and water needed in connection with the various projects; in many other cases loans were made by the Fleet Corporation to secure these services. The loan agreements provided for repayment of the amounts advanced within from 5 to 10 years with interest at 5% per annum. Much of this was ultimately returned and was credited to the cost of the respective projects; a report by the Fleet Corporation in 1924 showed that approximately 42% of these advances had been repaid.[23]

Table I shows the utility cost as a percentage of project cost for the various developments. This average ratio of 16.28% would seem to indicate an unduly high expenditure on these services. Part of it seems to have been attributable, however, to the excessive distances of many of the projects from ordinary utility services. Moreover, in some cases the facilities were extended in contemplation of more extensive developments which were not completed after the Armistice, and thus had little salvage value.

The problem of getting the construction work done on these housing projects at a fair cost to the Fleet Corporation was extremely difficult under war conditions. It was imperative that the work be done thoroughly as well as quickly. The usual form of open competitive bidding for the contracts was impossible since accurate estimates of costs could not be made. The only way materials could be obtained was through the Government. The construction companies were unwilling to estimate the time required for completion since they feared that deliveries could not be guaranteed because of transportation and other difficulties.

The cost-plus system, which was then being used by nearly all other departments of the government after our entrance into the war, had let costs run wild. However, the legislation authorizing the Fleet Corporation housing program had prohibited the ordinary form of cost-plus contract as already indicated. Under these conditions it became necessary to devise new contractual arrangements.

The contract as finally approved by the Board of Trustees of the Fleet Corporation incorporated a provision for a flat fee, a definite estimate of the cost, a bonus to the contractor for a saving over the estimate, and a penalty if the actual cost exceeded it. The contractor bidding for the work was furnished with a wage scale (fixed by the "Baker-Gompers Agreement") together with a schedule of prices of materials required. He was also supplied with plans and specifications which included the time of completion and information as to whether the construction should be hurried by means of overtime and extra shifts. The only unknown quantities were thus the amount of materials required and the man-hours of labor. On the basis of experience the contractor

[23] Hearings before the Select Committee to inquire into the Operations, Policies and Affairs of the U. S. Shipping Board Emergency Fleet Corp., House of Representatives, 68th Cong., 1st Sess., Pursuant to H. R. 186, Part C (1924), p. 2481.

proceeded to make an estimate on these items. His final bid then furnished an estimate of the total cost and the minimum percentage of such total cost which he was willing to accept as a flat fee for his compensation. If actual performance proved that his estimate was too low, he was thus required to share the excess cost equally with the owning company, up to a point where such sharing would reduce his fee to the minimum percentage of cost agreed upon. On the other hand, if he was able to effect a substantial saving over the estimated cost to the owning company he shared such saving equally with such company, to the extent that the fee due him was not in excess of a maximum percentage.[24]

This plan thus permitted a semblance of competitive bidding, but did not require the contractor to assume any direct obligations for the usual construction cost. Elimination of the factors of wage scales and material prices relieved the contractor of responsibility for expenditures determined by forces beyond his control; yet the plan avoided some of the causes of abnormal costs resulting from use of ordinary cost-plus contracts.

The estimated average net cost per cubic foot of construction for the single-family houses built in the various cities is shown in Table I. The estimated average cost of construction only, exclusive of land and utilities, was $5,163 per house. This cost has been criticized because it was impossible to obtain rentals from the workers which would permit either amortization or a return on the investment, but it must be realized that these figures reflect the increase in building costs during the war years.[25]

Any comparison of these construction costs with those achieved in the pre-war era must take cognizance of the conditions under which the program necessarily operated. Very little actual opportunity was present for the Fleet Corporation to influence the cost figures directly. The only sphere in which it was able to have much influence was in the design of the developments and in the payment of engineers' and architects' fees. The scale of wages was fixed by the "Baker-Gompers Agreement" which also regulated the rates charged for overtime. Materials were obtained through the construction division of the Army at the regular rates fixed in government schedules.[26] Moreover, other influences over which the Fleet Corporation had no control tended to increase costs. Such factors were freight tie-ups, the generally low efficiency of labor as a result of an excessive rate of turnover during the

[24] The method whereby such losses or savings were shared may be seen from an example of an underestimate and an example of an overestimate, using 5% of estimated cost as a basis for the flat fee, 2½% as a minimum, and 7½% as a maximum:

Example of Underestimate. The contractor estimated his cost at $3,000,000. He bid for a flat fee of $150,000 (5% of cost). The cost proved to be $3,300,000, or an excess of $300,000, for which the contractor was liable for ½ up to an amount which would reduce his flat fee to 2½% of the original estimate, or $75,000 on his estimate of cost. The deduction from his flat fee was, therefore, $75,000, which made a net additional cost to the owning company of $225,000 over the estimate.

Example of Overestimate. The contractor estimated his cost to be $3,000,000. He agreed to accept a flat fee of $150,000. The cost proved to be $2,700,000, with a resultant saving of $300,000. The contractor was entitled to so much or all of ½ of this amount as would not make his total fee in excess of 7½% of the estimated cost, or $225,000. His bonus on this contract was thus $75,000. The saving to the owner was $225,000.

[25] The best index of price changes in building materials during the war years is that developed by the price section of the War Industries Board under the direction of Wesley C. Mitchell. This index rose from 104 in January, 1913 (Base—Average prices July, 1913 to June, 1914=100) to 185 in December, 1918. One estimate indicates that labor costs in the building industry increased approximately 65% between 1913 and 1919 (*Report*, U. S. Housing Corp., Vol. I (1920), p. 216).

[26] The construction program was hampered very severely by certain material priorities imposed by the War Industries Board. Use of certain materials, particularly cement, was prohibited until December 15, 1918. (*Report*, Director General Charles Piez, *op. cit.*, *supra* n. 13 at 194.)

construction period, and the necessity of paying much overtime because construction was rushed to completion as quickly as possible.

Construction Completed

When the projects were finally completed in 1919 the records show that the program had provided accommodations for workers at 24 shipyards and 1 turbine plant. All types of structures necessary to completely integrated communities were erected.[27] The entire program provided housing accommodations for 28,064 shipyard workers, or 55,308 individuals.[28]

Table II gives the number of rooms in the single-family houses built at the various project locations and Table III gives similar data for the apartments. These data show that the typical house had six rooms, and the typical apartment four.

Units were chosen which were not too greatly at variance with the prevailing types in the various cities. In recognition of local customary standards, it was deemed desirable to give full recognition to diverse community types of construction. Thus, two-story, brick, row-houses were built in Philadelphia, whereas detached units only were built in the West and South.

It was also necessary to comply with divergent local laws affecting building. In Philadelphia, for example, frame construction was permissible in certain areas only. Local laws also regulated size of rooms, plumbing, ventilation, and various other matters. Even though these realty companies were semi-public in the sense that their dividends were limited, they were all subject to local regulation and codes governing building.

The original program contemplated utilization of $71,000,000 of the total appropriation of $75,000,000. Cancellation of a large number of proposed units after the Armistice permitted the saving of a portion of the allocated housing expenditure. All construction was stopped in those cases where the loss from disposal of uncompleted facilities would be less than the loss from completion of the projects, with the necessary write-off of the excess construction cost caused by the war.[29]

A vastly greater number of units were requested than were ever completed, started, or even planned. Requests were made for a total of 46,226 single-family houses alone, and for numerous apartments, dormitories, hotels, and auxiliary units; these requests contemplated accommodations for a total of 131,223 men.[30] No reliable estimate has been found of the appropriation which would have been necessary to satisfy these requests, but in view of the inflated costs during the war it certainly would have involved an expenditure many times the $75,000,000 actually appropriated.

Operation and Rental Policies

Rental schedules for all projects were established in the Division of Transportation and Housing of the Emergency Fleet Corporation in accordance with the terms of the "Operating Agreement." It was recognized that rentals neither fully compensatory on the basis of the excess

[27] The records in the Archives disclose that the following number and types of structures were completed: houses—8,644; dormitories—94; apartments—849; hotels—5; boarding houses—6; pumping plants—4; stores—98; halls and auditoriums—5; chlorinating plant—1; playgrounds and athletic fields—2; fire stations—3; schools—3; power and heating plants—6; garages—12; laundry—1; bakery—1.

[28] 3 *Report*, U. S. Shipping Board (1919) 78.

[29] A total of 457 buildings under construction were abandoned, whereas 300 units not yet under construction were eliminated (Records, *loc. cit.*, *supra* n. 14 The Archives).

[30] Records, *loc. cit.*, *supra* n. 14, The Archives.

war cost nor sufficient to cover interest and to provide a fair return on the stock equity of the shipbuilder could be obtained. Until six months after the Armistice, the companies were restricted in the rental market, as they could not lease the premises to non-shipyard workers. In many cities higher rentals could have been obtained from other tenants if this restriction had not been imposed, but adherence to this requirement necessitated the holding of several hundred units vacant until the restrictions on tenancy lapsed. Surveys in such cities as Camden, N. J., and Chester, Pa., showed that many professional em-

TABLE II. ROOMS AND RENTALS PER UNIT FOR SINGLE-FAMILY HOUSES: U. S. SHIPPING BOARD EMERGENCY FLEET CORPORATION HOUSING PROGRAM[a]

City	Number of Houses	Per Cent of Units by Number of Rooms[b]						Range of Rentals per Unit by Number of Rooms[b,c]					
		3	4	5	6	7	8	3	4	5	6	7	8
Baltimore, Md.[e]	825		35.9	27.0	37.1				d	$31.41 40.08	$39.00 40.08		
Bath, Maine	109			84.4	15.6					40.08 41.16	43.33		
Bristol, Pa.	320		68.8	2.5	26.9	1.8			$22.00 26.00	27.00	29.00 37.00	$36.00 37.00	
Camden, N. J.	1,578		21.6	7.0	69.8	1.5	.1		29.25 47.66	d	40.08 52.00	47.66 52.00	d
Chester, Pa.	990		16.9	9.8	69.7	3.2	.4		25.00 30.33	27.00 35.75	30.00 39.00	35.00	d
Clyde, Calif.	103[f]	23.3	49.5	24.2	1.0	1.0	1.0	d	d	d	d	d	d
Essington, Pa.	200		10.0	26.0	60.0	4.0			27.08 29.25	31.41 34.66	35.75 37.92	42.25	
Gloucester, N. J.	447		20.8	35.6	38.0	5.6			26.00 29.25	30.33 33.58	35.75 41.16	45.50 47.66	
Groton, Conn.	92		19.6	23.9	21.7	34.8			d	34.66	37.92 39.00	d	
Jacksonville, Fla.	158		22.2	61.4	8.2	8.2			25.00 30.00	32.50 37.50	40.00 45.00	45.00	
Lorain, Ohio	232		37.9	44.4	10.8	6.9			29.25 34.66	31.41 37.92	39.00 40.08	40.08 41.16	
Manitowoc, Wis.	100			28.0	48.0	24.0				31.41	35.75	40.08	
Newburgh, N. Y.	127			30.7	69.3					32.50	37.92 43.33		
Newport News, Va.	473		14.2	6.6	67.9	3.3	8.0		23.50 26.00	28.50 31.50	33.00 36.00	40.50	$42.50
Philadelphia, Pa.	1,989				96.3	3.7					24.00 41.00	d	
Port Jefferson, N. Y.	9			44.4	44.4	11.2				35.00	42.00	49.00	
Portsmouth, N. H.	278		85.6	2.9	11.2	.3			27.08 33.58	40.08	39.00 41.16	d	
Quantico, Va.	12	100.0						d					
Vancouver, Wash.	20	30.0	20.0	50.0				$27.50 30.00	32.50	35.00			
Wilmington, Del.	503		4.0		96.0				31.41 32.50		40.08 54.16		
Wyandotte, Mich.	79	1.2	16.5	16.5	65.8			d	28.16 32.50	33.58 37.92	34.66 39.00		
TOTAL[f]	8,644	.5	19.3	13.0	63.5	3.2	.5						

[a] Source: Basic data from Records of the Emergency Fleet Corporation, The Archives of the United States.
[b] Each unit contained bath, in addition to above room count.
[c] Based on 1919 rentals.
[d] Not available.
[e] Dundalk and St. Helena.
[f] Includes one 9-room unit.

TABLE III. ROOMS AND RENTALS PER UNIT FOR APARTMENTS CONSTRUCTED: UNITED STATES SHIPPING BOARD EMERGENCY FLEET CORPORATION HOUSING PROGRAM[a]

City	Number of Apartments	Per Cent of Units by Number of Rooms[b]							Range of Rentals per Unit by Number of Rooms[b,c]						
		1	2	3	4	5	6	7	1	2	3	4	5	6	7
Bristol, Pa.	212			30.2	68.0	0.9	0.9				$18.00 22.00	$22.00 28.00	$32.00	$30.00	
Camden, N. J.	59			27.1	40.7	30.5	1.7				d	d	d	d	
Chester, Pa.	162			24.7	55.6	18.5	1.2				30.33 32.50	33.50 37.92	28.00[f] 35.50	40.00	
Lorain, Ohio	8				100.0							36.83			
Newburgh, N. Y.	70			28.6	71.4						30.33	37.92			
Newport News, Va.	330	0.3	10.0	63.6	24.3	1.2		0.6	$22.00	$22.50 24.50	29.50 35.00	37.00 46.00	55.00		d
Wilmington, Del.	7		14.3	14.3		71.4				d	36.00		52.50 60.00		
TOTAL[e]	848	0.1	4.0	41.4	46.7	7.0	0.6	0.2							

[a] Source: Basic data from the Records of the Emergency Fleet Corporation, The Archives of the United States.
[b] Each unit contained bath in addition to above room count.
[c] Based on 1919 rentals.
[d] Not available.
[e] Does not include one unit at Gloucester, N. J.
[f] Unheated units.

ployees were willing to lease or buy units in the projects as soon as these restrictions were removed, but they continued in force until early in 1919. Although such restrictions were undoubtedly wise for the duration of the war, their enforcement for six months after the Armistice caused the various realty companies to sacrifice much revenue. In many cases the shipyard workers were unwilling to occupy the premises after the end of the war and sought less expensive quarters elsewhere, as a result of slackening of production or curtailment of overtime work in the shipyards.

In explaining its rental policies to Congress in 1919 a memorandum from the Fleet Corporation stated:

"After the schedules were prepared, comparisons were made with estimates of costs and in no case have schedules been approved that will show rentals as high as ten per cent of the gross cost although it is well established that a rental of at least twelve per cent on a fair valuation is required to give proper returns. On some projects the rental schedules show only about five per cent on cost and in these cases it is doubtful if they will be able to pay any interest to the Emergency Fleet Corporation for the first few years. Not even the projects showing the most favorable prospects are expected to meet the full charge for interest. Under these conditions there will be no return on investments made by the shipyard companies or other outside contributors and this is well recognized."[31]

Apparently it was recognized that the excessive war cost was far greater than the 30% write-off which the "Operating Agreement" had authorized and that this fact had to be taken into account in fixing rents. The records indicate that 60% of the capital cost was actually used as the proper base on which the rental return should be calculated. Table II gives the rental schedule for housing projects and Table III for apartment units.

It appears to have been extremely difficult during the war years to induce the shipyard workers to pay an increased amount in rentals out of their greatly enhanced earnings. Because of numerous complaints that the workers were "gouged" in the rentals charged in the

[31] Data presented in hearings before Senate Commerce Committee, 65th Cong., 3rd Sess. (1919). (Records, *loc. cit.*, *supra* n. 14, The Archives.)

various housing projects, an investigation was made of the relationship then existing between the income of the workers and their rental payments. Although it was found that in the majority of cases an expenditure of less than 1/5 of the worker's monthly income was spent on rent, many objections to the rentals were made in cases in which the ratio was much lower than this. The report cites cases of complaints on rentals of $7.00 per week for houses inhabited by workers earning approximately $100 per week. In other cases complaints on rentals were made by employees who had let rooms to their fellow shipyard workers for amounts in excess of the weekly rental of the entire house. This was quite a common practice during the war-time shipbuilding program, since it was impossible to accommodate all single workers in dormitories erected by the Fleet Corporation.[32] During 1920 and 1921 it became necessary to reduce rentals 10% and in some cases 20% in an effort to prevent the tenants from moving.[33]

Unfortunately, the records do not disclose the exact dates on which these projects were occupied. However, the only facilities actually used for living accommodations on the date of the Armistice were certain of the dormitories constructed at the various projects. The occupancy ratios of the projects are available for a three-year period, but should be considered in the light of the restrictions which limited occupancy to shipyard workers during a part of 1919.[34]

The minutes of the Shipping Board show excessive losses in bad debts from delinquent rentals because of the inability to enforce a strict businesslike policy in the face of lack of employment opportunities in the shipbuilding industry in the post-war years.[35] Finally, in 1924 it became necessary to write off more than $200,000 in uncollectible rent claims.[36] The above figure, however, does not represent the entire extent of such losses, as various and sundry amounts were written off subsequently. General humanitarian considerations for the plight of stranded workers after cancellation of shipbuilding contracts made a strict businesslike policy impossible, and was partly to blame for the poor financial showing.

Very few data are available on the net yield on the amount invested in these projects. The only figures available for a single complete year of operations (the fiscal year ending June 30, 1920) show a net yield equivalent to 3% on construction cost.[37] Since this was insufficient to permit payment of interest on the mortgages, the stock of many of these realty companies became valueless and eventually was vested in the Fleet Corporation.

The discussion up to this point has supplied the basic facts of the program. The concluding installment will consider the writing off of excess war costs, post-war control, disposition of the properties, and then appraise the accomplishments.

[32] Table I shows that a total of 28,064 workers were accommodated by the program. Dormitory and hotel accommodations cared for 7,604 single workers; assuming that the 9,499 single-family units correspond to the number of families cared for, the remainder of 10,961 workers must have been accommodated in the single-family units.

[33] 17 Minutes of Proceedings U. S. Shipping Board (1921) 3934.

[34] These occupancy ratios are as follows:*

	June 30, 1919	June 30, 1920	June 30, 1921
Houses	76.18%	94.17%	89.42%
Apartments	72.90	93.88	73.86
Stores	44.68	90.00	82.08

* 4 *Report*, U. S. Shipping Board (1920) 108; 5 *Ibid.* (1921) at 214.

[35] 17 Minutes, U. S. Shipping Board (1921) 7717.

[36] 10 Minutes, Board of Trustees Emergency Fleet Corporation (1924) 4780–1.

[37] Data presented to the Senate Committee on Commerce, in Records, *loc. cit.*, *supra* n. 14, The Archives.

Farm Buildings as Evidence of Productivity of Crop Land

By P. E. McNALL*

THE use of a farm-building classification as an index for land classification has been the subject of considerable discussion during the past few years. Land classifications made on this basis have varied both as to the weight they assign to the building classification and to the significance and uses claimed for the resulting land classifications. A number of land classifications depend heavily upon a classification of the value and the present condition of the buildings of the area; a fairly complete discussion of this method will be found in publications from Cornell University and from the Farm Credit Administration.

These land classifications usually rate the land areas with reference to their suitability for farming, and this implies, with greater or less degree of assurance, the desirability of the farms in the area as security for loans, insurance risk, etc., as well as the priority of the area in the extension of various types of rural improvements. All of this means fundamentally that the index is a measure of the income-producing ability of the farms of the area.

The use of building classification as a basis for land classification was first applied to areas which had been in agricultural production long enough for the basic productivity of the soil to reflect itself in the level of incomes of the area and from this to the character and condition of the buildings of the area. These areas had been farmed by several generations of farmers.

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The same general procedure has been applied, without extensive alterations, to newer regions of the country. In some instances the building classification may actually have been given even greater weight than when applied to the relatively old agricultural communities.

The study reported in this paper was made for the purpose of determining whether this type of classification can be applied to the farms of an area as small as a township (23,000 acres, including about 165 farms), and which has been farmed from 40 to 70 years. Can the productive capacity of the crop land of any one farm be determined by noting the character of the buildings of the farmstead? Is it possible to classify the crop lands of the farms in an area no larger than a township into different levels of inherent productivity through any classification of buildings? The sample used in this study covers only 165 farms, yet it should be fairly adequate to test the comparatively simple relations to be set up. What is more, if the classifications are to be used for the various purposes claimed for them, they must be applicable to a large majority of the farms of an area as small as a township. Farm loans are made on the basis of the incomes of the individual farms, and the extension of the various utilities—such as telephone, electricity, and surfaced roads—is made in terms of a group or of relatively few farms.

The Data and the Methods

The following information was used:

1. The crop land of each farm of Arland township, Barron County, Wiscon-

sin, was inspected by a soils specialist[1] who, in the light of this inspection, tentatively placed the crop land of each farm into one of the five following inherent soil classes:

A. "have the highest inherent productivity per unit of area of cultivated land. These farms have a soil profile that exhibits good water-holding capacity and yet is fairly well drained, but may have a mottled subsoil. The soils are usually of a silt loam character, deep, and free of stones. The topography is usually undulating to gently rolling with good surface drainage, consequently favorable for a variety of crops.

B. "are unfavorably influenced by one or more of the inherent physical characteristics. One soil may have only a fair water-hold capacity, or it may be poorly drained. Another soil may be stony at the surface, eroded, hilly, or affected in some other way to reduce, comparatively, inherent productivity.

C. "exhibit a pronounced unfavorable influence of one or more of the inherent physical characteristics.

D. "are considered marginal because of extreme unfavorable conditions, such as poor drainage, sandy, hilly, or usually a combination of two or more unfavorable factors.

E. "are rated out of cultivation because of a combination of unfavorable circumstances."

These five soil classes are not based upon soil-type classifications, but rather upon their inherent ability to produce the crops commonly grown in the township.[2]

2. A farm-management and cropping-practice survey was obtained from the farms of the area.

3. A detailed farm-building survey was made following the farm-management survey wherein every farmstead was again visited. The size, number of buildings, type of construction, and present condition were noted, along with other information which would help in estimating: (a) the approximate total first cost of all buildings now comprising the farmstead; (b) present condition of all buildings; and (c) approximate amount spent yearly to keep them in repair.

This judgment evaluation was made while near the farmstead. Every farmstead was classified with regard to each of these points as above average, average, or below average. Thus, a set of "A" first-cost buildings would be those for which cost of construction was of the largest in the area, whereas a set of "B" buildings represented approximately average costs of construction, and a set of "C" buildings was one for which total first cost was of the lowest group. The same procedure was used in determining the present condition of buildings. They were classified as "A," if well kept up; "B," if in average condition; or "C," if in a poor state of repair. By combining the facts as to approximate size, first cost of buildings, and present condition an estimate was made of the approximate amount spent yearly in keeping up the buildings. No consideration was given to the type of soil, topography of the land, size of the farm, or any other factor than those concerning the buildings themselves.

On the basis of the soil classification made by Graul the crop lands on 82% of the farms were fairly evenly distributed among the three highest inherent productivity classes (Table I), while 18% were in the lowest groups with respect to inherent productivity.

The inherent productivity of the crop

[1] Mr. E. J. Graul, Professor of Soils at the University of Wisconsin, was in charge of the soil study. He states that, because it was necessary to cover the crop land of three to five farms a day, the resulting classification of these farms is tentative. He thinks, however, that more detailed study of these farms will not materially change the classifications now made.

[2] It is possible for the soils of any one general soil type to contain areas of several of the five inherent productivity levels. Also, the crop land of any one farm may consist of some soils which fit into two or more of the five inherent soil classes listed above.

TABLE I. NUMBER OF FARMS WITH SOILS OF DIFFERENT LEVELS OF INHERENT PRODUCTIVITY

Inherent Soil Productivity of Crop Land	Number of Farms	Per Cent of All Farms
A	46	28%
B	39	24
C	50	30
D	26	16
E	4	2
All Farms	165	100%

land of the farms fairly well reflects the actual productivity as measured by present crop yields (Table II).

Total First Cost of the Buildings

If it is assumed that the better sets of buildings were placed on the soils having the greater inherent productivities, we should expect to find a very high proportion of the farmsteads with "A" cost of construction on the "A" and "B" soils, whereas farmsteads with "C" cost of construction should be located mostly on "D" and "E" soils.[3] Whereas 52% of all farmsteads are on "A" and "B" soils, 59% of all "A" costs of buildings are found here (Table III).

The best soils ("A" and "B") have only slightly more than their proportional share of the highest first cost ("A") buildings. Expressed in another way, 41% of all farmsteads on "A" and "B" soils were among the highest costs of construction, whereas 34% of the buildings on "C" soils and 36% of the buildings on "D" and "E" soils were rated "A" with respect to first cost. At the other extreme, 37% of the lowest ("C") first-cost buildings were on farms with "A" and "B" soils. Another 37% were on "C" soils and 26% were on the two poorest ("D" and "E") soils. There is no conspicuous concentration of high cost farmsteads on soils with the highest inherent productivities, although there was a slightly larger proportion of the lowest first cost buildings on poorer than on better soils. Thus the first cost of the buildings of a farmstead is not a dependable criterion of the inherent productive capacity of individual farms in Arland township.

TABLE II. INDEX OF CROP YIELDS* BY SOIL CLASSES

Inherent Soil Rating	Yield Index Weighted by Acreage	Yield Index Weighted by Acreage and Type of Crops Grown
A	109	105
B	111	113
C	86	87
D	83	89
E	107†	104†

* Crop-yield index numbers are used to compare yields of several crops on a given farm with average yields of the crops from the farms under consideration.

† Three of these 4 farmers appreciated they were on poor soils, and unusually good soil management on these farms resulted in better-than-average crop yields.

TABLE III. INHERENT SOIL PRODUCTIVITY AND FIRST COST OF FARM BUILDINGS

Inherent Soil Productivity	First Cost of All Buildings of Farmstead			Total
	A (High)	B (Medium)	C (Low)	
A–B	59%	51%	37%	52%
C	28	30	37	30
D–E	13	19	26	18
All	100%	100%	100%	100%

Present Condition of Buildings

Classification of the farms according to present condition of the buildings has nothing to do with the classification as to first cost of the buildings. A farmstead on which the buildings have cost less than $2,000 and one showing costs of over $8,000 may each be in "A" condition. This factor is simply a visual estimate of the state of upkeep and repair of the buildings on each of the farm-

[3] Attention is drawn especially to the "A" and "C" classes showing the character of the buildings, because there is no overlapping of these two groups, whereas there is of necessity some overlapping between "A" and "B" and between "B" and "C" classes.

steads regardless of original cost.

Table IV shows that, although the relationships between condition of the buildings on the farmsteads and inherent productiveness of the soils of the respective farms differed somewhat from the findings shown in Table III, these variations are significant only as they may contribute to a final indication of the character of the buildings.

TABLE IV. INHERENT SOIL PRODUCTIVITY AND PRESENT CONDITION OF BUILDINGS

Inherent Soil Productivity	Present Condition of Buildings			Total
	A (Good)	B (Fair)	C (Poor)	
A–B	64%	53%	38%	52%
C	26	33	30	30
D–E	10	14	32	18
All	100%	100%	100%	100%

Expense of Upkeep

A third factor having to do with the character of the farmstead is the approximate amount spent yearly in keeping the buildings in repair. This estimate was based upon the approximate first cost of the buildings of a farmstead and their present condition. A set of large buildings may have a relatively large yearly amount spent upon them and be in good condition. This farmstead would be classed as "A" in terms of present yearly maintenance costs. On the other hand, another set of buildings of equal size and first cost may have almost nothing spent upon them for repairs and upkeep, and this set of buildings will rank "C" with regard to maintenance expense. It is possible in this classification for buildings with high ("A") or medium ("B") first cost to rank either "A," "B," or "C" with reference to maintenance costs. It is not possible, however, for a set of buildings with very small ("C") first cost to rank in the highest ("A") maintenance cost group even though they are kept up in good shape. They would rank "B" or "C" with regard to maintenance depending upon the apparent condition of the buildings.

Table V shows that approximately 60% of the farmsteads with either "A" or "B" cost of yearly upkeep are on the soils with the two highest inherent productivities and that 36% of the farmsteads with "C" yearly cost of upkeep are on these soils, whereas 52% of all farms are in these two soil classes. The other soil classes are associated with somewhat less than their proportionate share of farmsteads with the highest yearly upkeep. Conversely, the largest percentage of farmsteads with lowest building maintenance costs are on farms with soils of lowest inherent productivity.

TABLE V. INHERENT SOIL PRODUCTIVITY AND YEARLY COST OF UPKEEP OF BUILDINGS

Inherent Soil Productivity	Cost of Maintenance			Total
	A (High)	B (Medium)	C (Low)	
A–B	60%	59%	36%	52%
C	27	33	31	30
D–E	13	8	33	18
All	100%	100%	100%	100%

Stated another way, 40% of all buildings of farmsteads on "A" and "B" soils have the highest yearly maintenance costs, whereas 30% of those on "C" soils and 23% of those on "D" and "E" soils have the highest maintenance costs. On the other hand, whereas 25% of the farmsteads on "A" and "B" soils have the lowest ("C") maintenance costs, over ⅓ of the farmsteads on "C" soils are so classed, and nearly 2/3 of those on "D" and "E" soils are in the lowest cost of maintenance group.

Better correlation exists between the character of the buildings, as shown by their cost of maintenance, and the inherent productivity of the soil than between productivity and either first cost of the buildings of the farmstead or their condi-

tion. Even here, however, a person would have only slightly better than a 50–50 chance of selecting farms having crop lands of any given level of inherent productivity simply by noting the character of the buildings on them.

A Small Area Test

The question may well be raised as to whether these relationships can be expected to show up significantly for a group of farms within an area of fairly uniform soil productivity. In order to help answer this question two widely separated areas, one in the northeastern quarter of the township comprising 8 sections of land and the other in the western part comprising 2½ sections, and together containing 86% of the "A" soil of the township, were marked out.[4] These two areas contained 29% of the land of the township and 36% of all farmsteads. One-half of the farmsteads of the township with high first cost of buildings were in this area as well as a like percentage of the buildings now in the best ("A") condition and of the farmsteads with apparently highest yearly cost of upkeep. Or, we can say, of the 59 farmsteads in the area 30 (or 51%) were in the highest first cost group, whereas only 24 (or 41%) were in "A" condition, and 28 (or 47%) in the group with highest yearly cost of upkeep (Table VI).

This area is probably too small to permit drawing conclusions relative to the character of farm buildings in uniform soil areas of considerable extent, but it does show that less than ½ the farmsteads in the area were of such character as to indicate an "A" soil type. The remaining 53% of the farmsteads were evenly divided between "B" and "C" character of buildings as reflected by the approximate current expense of upkeep.

[4] The areas containing soils "B," "C," and "D" were not so clearly defined as the "A" soils, so that no attempt was made to define either of the other soils.

TABLE VI. CHARACTER OF BUILDINGS IN A SMALL AREA WITH CROP LAND OF "A" INHERENT PRODUCTIVITY

	N.E.	S.W.	Total
Number of farms	43	16	59
Cost of buildings			
A	24	6	30
B	13	8	21
C	6	2	8
Present condition of buildings			
A	17	7	24
B	20	5	25
C	6	4	10
Current expense of upkeep			
A	21	7	28
B	13	3	16
C	9	6	15

Farm Income in Relation to Soil Productivity and Character of Buildings

Cash farm income and farm expense figures were obtained for 129 of the total of 165 farms for which soil classifications were available. Twenty-eight of these were tenant farms and 25 other operators used more or less land than they owned. In each instance the income and expense figures given are for the farm operated. They also represent the total business of the farm rather than the operator's share in the case of rented farms.

Table VII shows that the net cash incomes received from the farms on "A" soils averaged $572, those on soils "B" averaged $583, and those on soils "C" averaged $617. The net cash incomes of the farms on the two soils of lowest inherent productivity were conspicuously less than those for the farms on "A," "B," and "C" soils. The net worths of the farmers on "B" soils were larger than of those on "A" soils. The net worths of farmers on "C," "D," and "E" were progressively smaller. The larger farms on the "B" and "C" soils more than offset the disadvantage of slightly poorer soils.

The farmers on "A" soil raised slightly more crops per acre of crop land (expressed in dollars' worth of crops raised per acre); they sold more butterfat per cow, and had practically as large total

TABLE VII. RELATION OF INHERENT PRODUCTIVITY OF SOIL TO SIZE AND CASH INCOMES OF FARMS

Soil Productivity	Number of Farms	Total Acres Operated	Net Worth	Cash		
				Income	Expense	Net
A	33	111	$4,002	$1,513	$941	$572
B	32	123	4,570	1,387	804	583
C	41	134	2,823	1,394	777	617
D	20	107	1,516	995	525	470
E	3	93	859	862	796	66
All	129	120	$3,310	$1,349	$787	$562

assets as those of any other group. The cropping system shows them to have had somewhat less hay than any of the other groups. These figures would suggest slightly better yields on "A" soils than were obtained on farms with "B," "C," or "D" soils. It is an anomaly that the three farms on "E" soils, which are inherently too poor for continued cultivation, should have the largest average production per acre of crops.[5] Even so, other factors show these to be poor farms.

If better net cash farm incomes are inversely associated with better soils, except possibly for those of lowest inherent productivities, it may be that something in the character of the buildings of the individual farmsteads may indicate the farm operating levels.

Table VIII shows the relation of first cost of buildings of the farmsteads to incomes of the farms. Changes in net cash income do not vary directly with first cost of the buildings of a farmstead.

A more likely relationship should be expected between the approximate yearly amount spent for building repairs and net cash income. Here we find that a decreasing cash outlay for upkeep of buildings is accompanied by a smaller net worth of the operator and a reduced net cash income (Table IX). Apparently a better correlation exists between the character of the buildings, as represented by the cash expenses of upkeep, and the income of the farmer than between either the building character and soil productivity or between soil productivity and farm income.

TABLE VIII. RELATION OF FIRST COST OF FARM BUILDINGS TO SIZE OF FARM AND TO INCOME

First Cost of Buildings	No. of Farms	Acres Operated	Net Worth of Operator	Cash		
				Income	Expense	Net
A	51	133	$4,455	$1,529	$981	$548
B	59	121	2,785	1,323	702	621
C	19	85	1,865	944	532	412
All	129	120	$3,310	$1,349	$787	$562

The somewhat more definite relationship between (1) the amount apparently spent for repairs and (2) productivity and income suggests that over a longer period the character of the buildings may be a usable index of soil and of income. This relation is not yet sufficiently definite to justify its use in policy making or program building for single farms, groups of farms, or the whole area. Another hundred years of farming experience in this area may alter this judgment. The relative newness of the area may explain why the technique of land classification based on farm-building classification is not now applicable.

[5] See footnote † to Table II.

TABLE IX. RELATION OF APPROXIMATE YEARLY CASH COST OF BUILDING UPKEEP TO SIZE OF FARMS, TO INCOME, AND TO INHERENT SOIL PRODUCTIVITY

Approximate Yearly Cash Cost of Building Upkeep	No. of Farms	Acres Operated	Net Worth of Operator	Cash			Inherent Soil Productivity		
				Income	Expense	Net	A–B	C	D–E
A	45	146	$5,058	$1,741	$1,085	$656	28	13	4
B	47	111	2,916	1,162	649	513	28	14	5
C	37	101	1,684	1,108	601	507	9	14	14
All	129	120	$3,310	$1,349	$ 787	$562	65	41	23

Regulation of Utility Servicing under the Holding Company Act of 1935:

II. Allocation of Costs

By WILLIAM F. KENNEDY*

THE regulation of utility service companies presents two important problems: (1) the regulation of total expenses or costs of the service companies, which was discussed in a previous article,[1] and (2) the allocation of costs to the companies receiving services, which is discussed in this article. The act requires that the costs of service be fairly and equitably allocated among member and associate companies. This requirement is implemented by a rule that:

"Direct charges shall be made so far as costs can be identified and related to the particular transactions involved without excessive effort or expense. Other elements of cost, including taxes, interest, other overhead, and compensation for the use of capital procured by issuance of capital stock (or similar securities of an unincorporated company) shall be fairly and equitably allocated. . . ."[2]

The rule of the commission is simple in that it merely provides that the expenses of the service company shall be charged directly to the serviced company in so far as they can be related to particular transactions, and that the remaining expenses shall be charged on a fair and equitable basis. Although the rule is simple, it involves more refined methods of charging than prevailed before the act of 1935. During that period service companies commonly charged for their general management services "a single percentage of the total gross operating revenues, of the serviced company."[3] With respect to engineering and construction services, "a fee of 7½ per cent of bare construction costs has usually prevailed in recent years."[4]

The effect of the rule on cost allocation can be observed in the systems adopted by companies approved by the commission.[5] The systems fall into two general groups, those of companies approved before the decision of the Supreme Court in the Electric Bond and Share case and those of companies approved after this decision.[6]

Regulation Prior to March, 1938

After reviewing its action on applications filed prior to August 1, 1936, the commission announced that it had not insisted upon any special method of apportioning costs but had permitted each company to follow its own procedure.[7]

* Statistician, Trustees of Associated Gas and Electric Corporation.

[1] "I. Achieving Servicing at Cost," 17 *Journal of Land & Public Utility Economics* 27–38 (February, 1941).

[2] *General Rules and Regulations under the Public Utility Holding Company Act of 1935* (as amended to February 28, 1940), Rule U-13-32(b).

[3] Federal Trade Commission, *Utility Corporations*, Report to U. S. Senate, 70th Cong., 1st Sess., Doc. 92, Pt. 72-A, p. 605.

[4] *Ibid.* at p. 606.

[5] The analysis of the various systems which follows is based on the 1939 annual reports filed with SEC (Form U-13-60). Schedule 240 of the annual report (Form U-13-60) requires the reporting company to "State clearly and fully the bases used and principles and methods applied in the allocation of charges for service."

[6] After the decision in the Electric Bond and Share case (March, 1938), the commission insisted on more refined accounting techniques in allocating charges to serviced companies.

[7] It was claimed that this approach afforded the commission opportunity for study of the effect of various methods and for promulgation of necessary rules and regulations as experience would later indicate (Holding Company Act Release No. 317, August 1, 1936).

This group of applications embraced 10 companies. A study of the systems of allocation employed by the 7 additional companies approved subsequent to August 1, 1936 but prior to March, 1938 indicates that this policy was continued during that period.

Of these 17 companies, 11 may be described as general management companies and 6 as special service companies. The former are those engaged in a more or less broad range of activities, whereas the latter are limited to one or two particular functions such as stock transfer work, insurance, or safety work.[8]

General Management Companies. The commission approved 11 companies of the general management type in the period under consideration. The reports of the companies generally state that direct charges are made in accordance with the rule of the commission. In a few cases this is amplified by a statement to the effect that direct charges are based on time reports kept by employees. Generally, direct charges consist of salary expenses, directly chargeable through the application of some form of time report, and other expenses directly assignable to a particular company.[9] In two companies direct charges are limited to salary charges. In these instances expenses directly assignable are billed to the particular company without passing through the expense accounts of the service company.[10]

The methods of apportioning the expenses other than those charged directly show considerable variation in this group of companies but they can be divided into two general groups.[11]

Under one method the remaining expenses "follow" the direct charges, i.e., the remaining expenses or apportioned charges are proportionately assigned to each dollar of direct charges.[12] In most companies the direct charges consist of salaries directly charged and expenses directly assignable, but in the two companies referred to above the direct charges consist only of salary charges so the remaining expenses in those cases follow direct salary charges.

The procedure followed by the New England Power Service Co. exhibits a further variation in the application of this method. As far as practicable, salaries and expenses (accounts 210 and 211) are charged directly to the company for whom service is performed. The remainder in these accounts is then apportioned to the following four groups:

1. (a) Holding companies
   (b) Wholesale companies—electric
   (c) Distribution companies—electric
   (d) Distribution companies—gas
2. Bookkeeping
3. Engineering
4. Undistributed (The amounts assigned to this group are reapportioned ratably to

[8] The necessity for the distinction between these two types of companies is that their operations are widely different in nature, with the result that they face different problems in arriving at equitable systems of allocation.

[9] Charges directly assignable to a particular company are sometimes described as "out-of-pocket" expenses and refer to expenses incurred on account of services rendered to a particular company. The elements of "out-of-pocket" expenses are stated in one report to include "telephone, telegraph, traveling expenses, stationery, printing, insurance premiums and like items. . . ." (Penn-Western Serv. Corp., File 49–1, SEC, Schedule 215 (1938).) See also n. 10 below.

[10] Penn-Western Serv. Corp., File 49–1 and General Mgmt. Corp., File 49–13. A serious fault in this method of billing is that the commission has no check upon the amount or nature of expenses directly assignable to subsidiary companies since the transactions do not appear on the service companies' books. See also n. 12 below.

[11] For purposes of consistency service company expenses other than those charged directly are referred to as "remaining expenses." Remaining expenses are distributed among companies receiving services and the charges are described as apportioned charges to distinguish them from direct charges.

[12] The companies employing this method are: Penn-Western Serv. Corp., Midland Subsidiary Corp. (now ceased doing business); N. Eng. Power Serv. Co., and General Mgmt. Corp. (Holding Company Act Release No. 1998, April 1 1940.)

the six elements composing the three other groups.)

The amounts charged to the first two groups are apportioned among the client companies on the basis of gross earnings and the amounts charged to the third group are apportioned on the basis of direct charges for engineering.[12a] These apportioned charges, plus the direct charges for salaries and expenses, constitute "total salary cost." The remaining expenses, that is, the amounts charged to accounts 212 and 241, inclusive, are apportioned to each dollar of "total salary cost."

The other companies fall into a group which may be characterized as employing the percentage of gross revenue method or some variation of that method for distributing remaining expenses.[13] The Middle West Service Co. and Republic Mutual Service Co. apportioned charges, other than those made directly, among all companies served on the basis of gross operating revenues. Republic Service Management Co. charged directly only the salaries of five employees (a total of $17,000). The remaining salaries ($17,700) and other expenses were charged to companies served on a "percentage" basis, which was declared to have a fair relation to gross revenues of these companies. Citizens Utilities Co. charged 5% of remaining expenses to itself as expense of the holding company. The balance was charged to the holding company and subsidiary companies on the basis of the previous year's gross revenues. The portions allocated to two of the subsidiaries were assumed by the holding company. Columbia Engineering Corp. charged 50% of remaining expenses to companies served on the basis of operating expenses and 50% on the basis of gross book value of fixed capital. Nepsco Services, Inc., reported a more complicated system of allocation in which the method of apportioning charges varied with the department in which the expenses originated.[14]

Special Service Companies. During this period 6 companies were approved, the activities of which result in their classification as "special service" companies.[15] The three companies performing stock-transfer work (Midland Stock Transfer Co., Illinois Stock Transfer Co., and Utilities Power & Light Operating Co.) base their charges for services on a schedule of prices for different types of work and make adjustments to companies receiving services to reduce charges to the cost of performing the services. The Illinois Stock Transfer Co. classifies all its charges as apportioned charges but there is no substantial difference between its method of allocation and those of the other transfer companies which classify their expenses as direct.

The Bureau of Safety performs the administrative work for the insurance system of the Middle West Corporation holding company system. It bills all expenses to Barber, Wilson & Olson, the insurance trustees, and thus can classify

[12a] Costs of construction labor and personnel are charged directly to particular jobs and do not enter the expenses of the service company.

[13] The companies in this group are: Middle West Serv. Co., Republic Mutual Serv. Co., Republic Serv. Mgmt. Co., Columbia Eng. Corp., Nepsco Services, Inc., Citizens Util. Co.

American Serv. Co., one of the 11 general management companies approved during this period, is not included because it was inoperative in 1939.

[14] In its finding the commission stated that this system of allocation was "rather complicated." (*In the Matter of Nepsco Services, Inc.*, Holding Company Act Release No. 316, August 3, 1936, p. 2.) Limitations of space do not permit a full analysis here of the complexities of this system.

[15] These companies are: Midland Stock Transfer Co., Ill. Stock Transfer Co., Bureau of Safety, Barber, Wilson & Olson—Trustees, Nepsco Appl. Finance Corp., Util. Power & Light Operating Co.

The last company formerly performed a broad range of services but these activities were discontinued on January 1, 1938. Since that date the company has been principally engaged in performing stock-transfer work for the system.

all its charges as direct. The Trustees bill participating companies for various types of insurance at specified percentages of standard or normal rates and make refunds to associate companies to reduce their charges to cost of service. Non-associate companies receive no refunds and a profit is earned on this part of the business.[16]

Nepsco Appliance Finance Corp. charges its expenses to participating companies on the basis of the average amount in dollar volume of contracts held during the month. The major item of expense of the service company is the interest on the money it borrows in order to purchase conditional sales contracts from participating companies. This company classifies all its charges as "apportioned" charges.

Regulation after March, 1938

Regulation in this period was characterized by an insistence that systems of cost allocation employ more refined accounting techniques to the end that operating companies be charged in accordance with services actually received.[17]

The annual reports of this group of companies show that direct charges are made on the same basis as companies approved earlier—namely, that salaries and out-of-pocket expenses are charged directly as far as practicable without undue effort or expense. Annual reports of many companies state that direct salary charges are based on time reports of employees. It can be assumed that all companies base direct salary charges on some form of time report because it provides the only practicable method of making such charges. Several of the companies introduced a refinement in computing the per diem salary of the employee to be used as a basis for the salary charge, so that non-productive time (vacations, holidays, and in some cases, time lost on account of illness, etc.) would be spread evenly and charged proportionately to each hour of productive time.[18]

Another device by which the proportion of direct charges is increased in the more recent systems of allocation is the "loading" of direct salary charges. Briefly, "loading" consists of some additional charge placed on direct salary charges to represent a part of the overhead. Loading of direct charge is illustrated by the system of allocation employed by Electric Advisers, Inc. In this system direct costs consist of:

1. Salaries of officers and employees whose services can be charged directly for time spent;
2. Out-of-pocket expenses; and
3. A proportion of departmental and general overhead expense.

Departmental overhead expenses consist of all expenses of a department ex-

[16] All charges for services performed at cost are classified as "apportioned" rather than "direct" charges in the reports of this company, but, as in the case of stock transfer companies, the use of uniform schedules of prices adjusted to cost may warrant use of the "direct charge" classification.

[17] Twelve service companies were approved during this period, 11 of which were general management type companies. The other company, Equitable Auto Co., is considered a special type inasmuch as its main activity is furnishing automobiles and trucks to associate companies. Its method of allocation has little application to the principal problems of other service companies; hence the discussion in this section will be confined to the so-called "general management" companies.

[18] Per diem salary charges consist of 1/241 of the annual salary of the employee in the system of the Pub. Util. Mgmt. Corp. The ratio, 1/254 of the annual salary, is used by Electric Advisers, Inc., Gas Advisers, Inc., and the Commonwealth & Southern Corp. Pub. Util. Eng. & Serv. Corp. computes an hourly rate based on standard working hours in the year.

The effect of these refinements is to increase the proportion of direct charges. An operating company making use of one day's time of a service company employee not only pays the amount of daily salary received by such employee from the service company but an additional amount to cover those days on which he is paid by the service company but does not put in any productive hours because of vacation, holidays, etc.

cept out-of-pocket expenses and the salaries of officers and employees whose time has been charged directly. Thus the expenses would include clerical salaries, rent, telephone and telegraph, stationery, and office supplies of the department. This departmental overhead is added to salary charges in the ratio of the overhead to the total salary charges of the department.

General overhead consists of directors' fees, legal, auditing, insurance, tax, and other expenses not identified with one department, as well as the costs of the office service departments (personnel, bookkeeping, etc.) and year end salary adjustments. To each dollar of direct charge (consisting of direct salary charge, out-of-pocket expense, and departmental overhead) is added a portion of general overhead based upon the ratio which the total general overhead bears to the total aggregate expenses of all departments.[19]

Several of the companies approved during this period adopted a form of charge best described as semi-direct.[20] An example of the semi-direct charge is found in the system of cost allocation adopted by the Commonwealth & Southern Corp. Every service rendered is charged to one of three classifications: (1) to a specific company, (2) to the General Group, which embraces the parent company and all contracting operating companies, or (3) to a group of companies other than the General Group. Charges made to the last classification are described as semi-direct and are made to operating companies in 13 groups, which are based on both geographical and operational characteristics. Charges assigned to each group are allocated to constituent operating companies on the basis of their gross operating revenues.[21]

The semi-direct charge is properly classified in the annual reports as an apportioned rather than a direct charge, so that its use does not result in a larger proportion of direct charges. The semi-direct charge provides a more equitable method of charging for certain types of services than is provided by systems employing merely direct and apportioned charge classifications. This is particularly true in a large system where a considerable amount of work applies to a geographical or operational group smaller than that embracing all companies.

The allocation systems of companies recently approved by the commission do not differ much from those of the first group of companies approved with respect to the methods of distributing remaining expenses. In general, distribution of remaining expenses is made on the basis of gross operating revenues of companies receiving services.

In almost all cases where remaining expenses are distributed on the basis of gross operating revenues, provision is made for eliminating intercompany revenues. The justification for the elimination is that otherwise there would be "double-counting" of revenues received by one associate company from another. "Double-counting" may or may not be detrimental to an equitable system of distribution of charges. A generating company, whose sole source of revenue is from the sale of energy to associate companies, pays no part of the apportioned charges if such elimination is made. The

[19] Gas Advisers, Inc. also uses this system of allocation. Other companies, the systems of which provide for a "loading" of salaries, are Federal Advisers, Inc., Pub. Util. Mgmt. Corp., and Pub. Util. Eng. & Serv. Corp.

[20] The term is used because the impact of the charge upon operating companies is not direct, but is more direct than charges classified as apportioned.

[21] Other companies that employ a form of the semi-direct charge are United Light & Power Service Co. and Pub. Util. Eng. & Serv. Corp.

elimination is justified if the company makes little or no use of the service company but, if the administration of the system is one which results in the performance of a great deal of servicing for the generating company, the generating company probably does not bear its proper share of expenses.

Two systems provide for eliminating intercompany purchases for resale.[22] The system of Public Utility Engineering and Service Corp. provides for eliminating the cost of electricity and gas purchased for resale.[23] The justification offered by the latter company for this type of adjustment is

> "that companies which purchase from other companies a substantial proportion of the electricity or gas which they distribute will ordinarily require less attention on the part of the service company than would be the case if they generated or produced all of the electric energy or gas which they distribute."[24]

Another refinement used in the application of the gross operating revenues basis is the sliding scale. The sliding scale is illustrated by the system adopted by the United Light and Power Service Co., which provides that charges will be apportioned on the basis of the "base operating revenues." "Base operating revenues" for each company are the sum of:

100% of the first $600,000 of operating revenue
85% of the next $3,000,000 of revenue
30% of the balance of revenue.[25]

The justification offered for such weighting in favor of the larger companies is that the smaller companies receive relatively greater benefits from the services for which the charges are apportioned and should therefore bear a larger part of the burden.[26]

Some systems of allocation recognize that the demands of operating companies for certain kinds of services are not closely related to the respective gross operating revenues of the companies. Public Utility Engineering and Service Corp. apportions the expenses of its purchasing division, which are not charged directly on the basis of time, among the companies serviced on the basis of the dollar value of their orders placed through the service company for the preceding five years.[27]

Remaining expenses of the publicity section of the promotion of business division of Public Utility Engineering and Service Corp. are allocated to the various companies on the basis of number of releases furnished.

Engineering and construction supervision expenses appear to be more closely related to capital than to revenue measures. This is recognized in the system of allocation used by Atlantic Utility Service Corp. which provides for the allocation of remaining expenses on the basis of capital additions and maintenance expenditures of operating companies during the preceding six months' period.[28]

Systems of recently approved compa-

[22] Electric Advisers, Inc. and Gas Advisers, Inc.

[23] It will be noted that this system differs from that adopted by Electric Advisers, Inc. and Gas Advisers, Inc. in that it eliminates the cost of purchases of energy, regardless of whether the purchases are made from a non-associate or an associate company.

[24] Pub. Util. Eng. & Serv. Corp., Docket 37-32, SEC, January 27, 1939, Exhibit No. 9, p. 2.

[25] Pub. Util. Eng. & Serv. Corp. and Ebasco Services, Inc., employ similar systems with different percentages and different blocks of revenue.

[26] Pub. Util. Eng. & Serv. Corp., Docket 37-32, *op. cit.* The validity of the claim depends upon the particular facts of the case. No attempt was made by this company to prove that it represented universal or common experience.

[27] The Atl. Util. Serv. Corp., whose application for approval was pending as of March 1, 1941, uses a similar method of apportionment for its purchasing department but shortens the base period to the preceding six months.

[28] Ebasco Services, Inc., meets this problem by apportioning remaining expenses of its design and appraisal division on the basis of the ratio that direct salary charges on work orders of a particular company bear to direct salary charges on all active work orders.

nies give considerable attention to the problem of charging the holding company with its proper share of remaining expenses. One method adopted charges a fixed percentage of the remaining expenses to the holding company. Wm. A. Baehr Organization, Inc., charges 25% of its remaining expenses to the holding company and assigns the remaining 75% to all operating companies to be distributed on the basis of their gross operating revenues.[29]

The system of the Northeastern Water & Electric Service Corp. was revised so that the holding company was charged with the remaining expenses of the New York office in the proportion that its direct charges (exclusive of out-of-pocket expenses) bore to the total of such charges by the New York office. Out-of-pocket expenses were excluded from direct charges in computing the share of the holding company after the service company discovered that their inclusion resulted in an unfair burden for operating companies.[30] The company petitioned the commission for approval of the revised system, which had the effect of increasing the allocation to the holding company to the benefit of the operating companies.[31]

For four years the commission followed the policy of granting tentative approval to service companies which proposed to allocate expenses to holding companies on the bases described above. The equity of those methods of charging was generally based on the assumption that system holding companies were similar to system operating companies and therefore were fairly billed under a method employing direct charges and a distribution of remaining expenses which was similar to that used for operating companies. However, in the Ebasco finding in August, 1940, the commission threw open the whole problem of relationships of service companies, holding companies, and operating companies within holding company systems and promulgated new policies which will require significant changes in the organization of many systems in the immediate future.

Policies Adopted in the Ebasco Case

The finding in the Ebasco case was concerned with proper allocation of the salaries of common officers and employees of the holding company and the service company.[32] The commission pointed out that when the service company was organized six directors and executive officers of the holding company "were placed in identical positions in the service company, without altering their status in the holding company." The total annual compensation of these six individuals and their office assistants is $303,750, which is allocated in the following proportions:

Service company	55.46%
Holding company	43.76%
	99.22%[33]

[29] Commonwealth & Southern Corp. uses a similar method by which 10% of the apportioned charges are charged to the holding company and 90% to operating companies, the latter amount being further distributed on the basis of gross operating revenues. Amer. Gas & Elec. Serv. Corp. uses a similar method for allocating remaining expenses of 5 of its 13 departments.

[30] Generally, operating companies will have higher out-of-pocket expenses than the holding company which has its place of business in the same building as the service company. Telephone and traveling expenses incurred on account of the holding company are likely to be small under the circumstances.

[31] *In the Matter of Northeastern Water & Elec. Corp.*, Holding Company Act Release No. 1867, Jan. 5, 1940, p. 3. A similar method, based on direct salary charges, is employed by the United Light & Power Eng. & Const. Co.

[32] *In the Matter of Ebasco Services, Inc.*, Holding Company Act Release No. 2255, Aug. 27, 1940, pp. 19–22.

[33] An associate real estate company, 2 Rector Street Corp., which is a subsidiary of the service company, bears the balance, or .78% of the total.

Counsel for the public utilities division of the commission contended that this situation violated Sections 13(a) and 13 (b). It was urged that the separation between the holding company and the service company was merely a "paper separation" and that the two companies were actually fused into a single organization. Therefore, counsel urged that the holding company was engaged in servicing in violation of Section 13(a).[34]

The commission pointed out that the intent of Congress was to prohibit servicing by holding companies and that one of the reasons for compelling a separation of holding company business and servicing was to remove the barrier to determining costs of services which existed where holding company functions were commingled with servicing functions.[35] The commission concluded that in this particular instance the functions of the principal officers of the service company were commingled with their functions as officers of the holding company so that the value of their services to each company could not be determined with any degree of accuracy.

Counsel for the public utilities division also contended that allocations of salary expenses of common officers were necessarily arbitrary and that, therefore, it was impossible for the service company to meet the cost standards of Section 13(b).[36] The commission agreed with this contention and concluded that the condition could be remedied in either of two ways:

"(1) The officers and employees who now hold positions in both companies can sever their relations with either company;

(2) Bond and Share (the holding company) might undertake to pay the entire compensation of the common officers and employees."[37]

The commission stated that in the past it had permitted holding companies and service companies to have common officers when cost allocations were affected but that it now believed it was in error in permitting those situations to continue, and therefore it would not follow such precedents.

The two suggestions of the commission give holding companies and service companies some latitude in solving this problem. The effect of the suggestion that common officers and employees can sever their relations with either company is to give the holding company and the service company an opportunity to form separate staffs by distributing the existing staff in the way found most suitable and by adding other personnel if desired. The effect of the suggestion that the holding company pay the entire compensation of common officers and employees is to permit the continuance of common or interlocking personnel, if that form of organization is found most satisfactory to the companies. This step satisfies the requirements of Sections 13(a) and 13(b) because Section 13(a) only prohibits holding companies from performing servicing

[34] Section 13(a) prohibits a registered holding company from servicing an associate company, which is a public utility or mutual service company. Rule U-13-10 extends this prohibition to servicing of subsidiary service companies.

The commission did not discuss the fact that the service company in this instance was a subsidiary company. The important point was that part of the salaries of the officers and employees of the holding company was paid by the service company and these expenses entered into the costs of services of associate public utility companies.

[35] In this connection the finding quotes the following from a Senate Report:

"The object of this section [13] is not merely to require the contracts to be performed at cost but at the same time to avoid the almost impossible and wasteful task of trying to determine what that cost is when operations are commingled with various other activities." (Sen. Rep. No. 621, 74th Cong., 1st Sess. (1935) 36.)

[36] The cost standards of §13(b) require, among other things, that costs be fairly and equitably allocated among associate companies.

[37] *In the Matter of Ebasco Services, Inc., op. cit.*, at 21.

for a charge,[38] and no problem of allocation under Section 13(b) arises where the service company (and hence the operating companies) bear no part of the burden of the common personnel in question.

From the standpoint of reducing the costs of service to associate public utility companies, it would be more desirable for holding companies to adopt the second step and assume the salary expenses of common officers and employees. It is probable that a change in the allocation of expenses would not result in a corresponding change in the distribution of the services of common personnel. The service company would probably continue to receive the past quota of services from the common personnel and associate companies might achieve the benefits of some free services.[39]

Administrative and executive officers of service companies are frequently officers or employees of holding companies and they account for significant parts of service company salaries and expenses. An exhibit of the commission analyzes the salaries of 11 major service companies and shows that salaries of the executive and managerial departments aggregate $2,805,981 or 21.17% of total salary expenses and 14.55% of total expenses of these service companies.[40] The amounts that would be saved by associate operating companies, if holding companies assumed all salaries of common personnel, are not ascertainable from the data available but the above percentages indicate that relatively large amounts of service company expenses are involved in salaries, the allocation of which may be questioned by the commission.

It is possible for a holding company system to take action under the first step suggested by the commission and achieve an arrangement under which the expenses of the service company (and consequently the costs of associate companies) would be increased. For example, if the common officers and employees in the Electric Bond and Share Company system severed their relations with the holding company, the annual expenses of the service company on account of these salaries would increase from $170,000 to approximately $300,000. The holding company might reduce its present annual salary expenses for officers by reducing the number of officers or by replenishing its staff, in whole or in part, by "figureheads" who would be amenable to the suggestions of the controlling officers.[41] Whether or not the expenses of the holding company can be reduced, service company expenses could be increased by arrangements conforming with the first step.

This result is recognized in the Ebasco finding, for the commission states:

"We regard the second alternative as step [sic] toward insuring that the standards of Section 13 are met. If this step does not prove effective, we shall have to decide whether complete segregation of directors, officers, and employees between the registered holding company and subsidiary service company may not be necessary to insure economical and efficient servicing for the benefit of associate companies at cost under the Act."[42]

[38] This definition of servicing is given in §§2(a) (19), 2(a) (20), and 2(a) (21).

[39] In the Electric Bond & Share Co. system the service company had paid 55.46% of the total compensation of common personnel, or $170,000 on an annual basis. Total annual expenses of the service company were about $4,500,000 so the saving would amount to less than 4% in this instance.

[40] N. Eng. Power Serv. Co., File 4–21, SEC Exhibit No. 7.

[41] The possible economies of the holding company that appear at first glance may not be realizable in practice. The control group might be placed in embarrassing positions by having clerks, stenographers, or other relatively low paid personnel act as officials, when those officials were called into conferences by commissions or other parties to discuss possible action on matters that were vital to the holding company.

[42] *In the Matter of Ebasco Services Inc., op. cit.*, at 21.

Subsequent show-cause orders served on four service companies and their holding companies indicate that the interest of the commission extends beyond interlocking positions held by principal officers of the holding company and the service company.[43] Orders served on service companies require them to show cause why they should not make such changes as appear necessary for the purpose of discontinuing the payment of compensation to any officers, directors, or employees, who are officers, directors, or employees of, or who render or perform services for the top holding company or for any other registered holding company, so as to insure that service, sales, and construction contracts are performed economically and efficiently for the benefit of associate companies at cost, fairly and equitably allocated among such companies.

Orders served on the holding companies direct them to show cause why they should not cause those officers, directors, and employees who are paid wholly, or in part, directly or indirectly, by their operating subsidiaries to sever their relationships with the holding companies or, in the alternative, cause the holding company to pay the entire compensation of all such officers, directors and employees.[44]

After the decision in the Ebasco case the public utilities division of the commission sent letters to service companies previously approved informing them of the change in policy and requesting them to consider the problem of interlocking officers and directors in their systems and to advise the commission of the steps they proposed to take to revise the existing arrangements.

The United Light and Power Service Co. filed an amendment incorporating proposed changes for the purpose of complying with the principles of the Ebasco case. This service company had on its payroll all officers of the top holding company. These individuals were for the most part officers of the three system subholding companies. None of the system holding companies had a direct payroll, and all salaries, with minor exceptions, were paid by the service company and recharged to operating and holding companies.

The terms of the amendment provide that the following persons will be paid only by the system holding companies:

1. Persons who are directors or officers of associate holding companies;[45]
2. Persons who regularly perform executive or administrative duties on behalf of one or more associate holding companies;
3. Persons performing accounting and auditing services except those engaged in such services for the service company itself and field auditors who perform services primarily for operating companies;
4. Persons employed primarily in stock-transfer work for holding companies;
5. Office assistants of the above persons, such as secretaries, clerks, messengers, and telephone operators.[46]

The proposals eliminate practically all allocations of costs between holding

[43] Show-cause orders were issued as follows:
In the Matter of N. Eng. Gas & Elec. Assn. and its subsidiaries; *Congress Machine Accounting Corp.*, Holding Company Act Release No. 2338; *In the Matters of Middle West Serv. Co., Middle West Corp.*, Holding Company Act Release No. 2340; *In the Matters of Columbia Eng. Corp., Columbia Gas & Elec Corp.*, Holding Company Act Release No. 2342, Oct. 22, 1940; *In the Matter of Commonwealth & Southern Corp.*, Holding Company Act Release No. 2414, Dec. 9, 1940.

[44] As of March 15, 1941, the commission had not issued any further orders in these matters.

[45] A temporary exemption under §13(a) was granted to permit two officers of holding companies to receive compensation from an operating company. (Section 13(a) empowers the commission to exempt transactions "involving special or unusual circumstances or not in the ordinary course of business.")

[46] *In the Matter of United Light & Power Serv. Co.*, Holding Company Act Release No. 2608, March 11, 1941, p. 4.

companies and operating companies.[47] The bulk of charges to operating companies will consist of salaries of the engineering, rate, and appraisal departments of the service company. The result of the new system of allocation is to increase the costs of holding companies and to decrease correspondingly the costs of operating companies by approximately $120,000 per year.

The action proposed in the United case goes farther than the specific requirements of the commission in the Ebasco case, inasmuch as the services performed by the stock-transfer and accounting departments (the latter with minor exceptions noted above) are adjudged to be holding company functions and accordingly the expenses of such departments are assumed by the holding companies of the United system.

As a result of these orders and findings, it appears that the commission has now taken the position that it is not satisfied with existing methods of allocating service company costs to system holding companies. With respect to any particular system the commission may go so far as to insist upon a complete segregation of the staffs of the holding and service companies, or its requirements for fair and equitable allocation may be satisfied, as in the Ebasco case, if the holding company assumes the expenses of the principal executive officers common to the holding and service companies. The action taken in the United case, although not resulting in complete segregation of staffs, is more thoroughgoing than that required in the Ebasco case.

Merely requiring a complete segregation of the staffs of the holding company and of the service company does not solve the problem of allocating costs to the holding company. The requirement raises the perplexing question of what functions the staff of each company shall perform. There appears to be no satisfactory, objective standard for deciding this question.

The "benefit theory" suggests a possible standard. Under this theory, the staff of the holding company would include all personnel performing services which are primarily for the benefit of the holding company, and the staff of the service company would include personnel performing services which are primarily for the benefit of operating companies. But this theory fails to offer an objective standard because almost any centralized function performed for the benefit of the operating company yields a benefit to the owner of the equity of that company —namely, the holding company. For example, the handling of rate problems is a necessary part of the business of operating a utility. In some instances that function is centralized in a service company. Is that function performed for the benefit of the holding company or the operating companies? In all likelihood, benefits inure to both.[48]

The most practical method of determining the functions of the service company which should become the responsibility of the holding company is negotiation on an individual basis between the service company officials and

[47] The finding noted that minor problems remained respecting allocations of accounting and auditing services but the aggregate amounts of salaries were so small as to merit exemption under §13(a).

[48] The rate department of the Commonwealth & Southern Corp. developed the objective rate plan, which was introduced on the operating properties of several system companies. The plan resulted in large increases in consumption, lower rates, and greatly increased sales of appliances. The success of the plan led to its use by many companies outside the Commonwealth & Southern system. (See W. F. Kennedy, *The Objective Rate Plan* (1937), pp. 16–8.) The plan yielded benefits to the operating company and the holding company and also to companies and persons outside the system.

the staff of the commission. Close study of each type of service rendered should reveal some indications of whether it is primarily for the benefit of the holding or the operating companies. Although final determinations cannot be reached on an objective basis, negotiations should result in compromises satisfactory to reasonable minds.

The requirement of separate organizations for the holding and service companies and the requirement that the expenses of entire departments be assumed by the holding companies, may be justified on the ground that they give assurance that the holding companies will pay their share of the costs, once that share is determined. Where the separation is not made, determination of what constitutes work on behalf of the holding company is left with the control group. It is in the interest of this group that as large a part as possible of total billings be made to operating companies.[49]

The chief objection to the requirement of two separate organizations is that the two organizations are less economical than one. The holding company may require an expert accountant and a small staff to keep its books and file reports with commissions. This work may not involve more than a month or two of their time. The same may be true of tax and financial services. Separation into two organizations of such personnel greatly reduces the "load factor" of their services.

A possible solution to the problem of diseconomies arising from "duplicate" staffs for holding companies and service companies was indicated by one of the steps taken in the United case. The personnel of the accounting and auditing department was transferred to the payroll of the holding companies, but the commission permitted certain exceptions which obviated the necessity of forming a duplicate accounting staff for the service company. Permission was granted to make allocations to the service company for services in connection with its accounts and reports.[50]

The new policy of the commission has not been applied to a sufficient number of service companies to permit a conclusion on whether the allocations resulting from the policy better meet the standards of fairness and equity than those resulting from its former policy. However, the new policy holds out a promise of improved allocations. Holding companies have certain purposes and functions. Heretofore, it has been a common practice for the service company to employ personnel to perform these functions in connection with their other work and to make a charge to the holding company for services performed. The new policy requires holding companies to engage and pay the staff required to effectuate its purposes and perform its functions. If the new policy is judiciously administered and the proper groups of service company officers and employees are transferred to payrolls of holding companies, a practical solution to the perplexing problem of allocation will be attained. Such a solution will be in the interest of sound management for it will free management from the task of continually deciding the disposition of charges for services in borderline cases.

Appraisal of Methods of Cost Allocation

Economic and Accounting Bases. A substantial portion of service company costs are overhead costs, but care should

[49] These are charged as operating expenses of the utilities and hence do not diminish the amount of earnings which utilities are allowed under regulation.

[50] *In the Matter of United Light & Power Serv. Co., op. cit.* at 4.

be taken to use that term in its accounting rather than in its economic sense.

Overhead cost in the economic sense is defined as including "outlays that, within the production period under consideration, would not vary, whether the volume of output was large or small."[51] The economic principle of overhead costs is not applicable to service companies because it is based on the assumption that the supply produced under conditions of overhead costs and the demand for the product are the results of decisions made by two independent groups, the producers and the consumers of the product. This assumption cannot be made generally for system service companies because both the supply of, and the demand for, their outputs are determined by one group, the control group of the holding company.

Furthermore, firms which are regarded as subject to the principle of overhead costs consist of those which have relatively large investments in durable, specialized instruments of production.[52] A very small proportion of the total costs of service companies is attributable to investment in property and plant.[53]

It is necessary to point out that the economic characteristics of system service companies do not indicate the applicability of the economic principle of overhead costs in order to avoid the erroneous application to service companies of methods of cost apportionment which are derived from this principle. For example, one writer states

> "... a subsidiary during a specific period may not have need for particular services which the holding company is obligated to perform whenever its aid is requested. The readiness-to-serve costs of managerial services are as real as those recognized in the rendering of gas or electric services. In the apportionment of such costs the use of gross revenues, reflecting the size of operations and the potential extent of need for aid, offers advantages."[54]

The purpose of levying readiness-to-serve costs on users of electric and gas service is to secure a fair and equitable assignment of certain overhead costs of the electric and gas plants to the various groups of consumers under conditions of regulated monopoly.[55] Since system service companies do not possess characteristics of firms operating under overhead costs, there are no *economic* grounds for arguing that their cost apportionments should be based on the principles of the readiness-to-serve charge.[56]

Although the economic principle of overhead costs is not applicable to the costs of system service companies, the term "overheads" in the accounting

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[51] A. M. McIsaac and J. G. Smith, *Introduction to Economic Analysis* (Boston: Little, Brown & Co., 1937), Vol. II of Economics and Social Institutions, p. 90. A similar definition of overhead costs as applied to public utilities is given by M. G. Glaeser, *Outlines of Public Utility Economics* (New York: Macmillan Co., 1927), pp. 621–3.

[52] "In general, supplementary cost results from investment in durable, specialized instruments of production." Garver and Hansen, *Principles of Economics* (New York: Ginn & Co.), Rev. Ed. (1937), p. 161.

[53] "Achieving Servicing at Cost," *op. cit., supra* n. 1 at 28. Office furniture and equipment, although durable, are not specialized in that desks, typewriters, etc., are used in practically all industries and are readily transferable.

[54] D. E. Lilienthal, "Recent Developments in the Law of Public Utility Holding Companies," 31 *Columbia Law Review* 189, 198–9 (Feb., 1931).

[55] The economic principle that overhead costs of a given firm must be met in the long run if the level of investment is to be maintained is applicable under the conditions of regulated monopoly obtaining in the electric and gas industries as well as under conditions of pure competition.

[56] Application of the readiness-to-serve charge is not justified on theoretical grounds and there are several objections to use of the charge on practical grounds. For example, if the readiness-to-serve charge is conceived as a method of charging operating companies for the idle time of the service company staff, the charge will vary in direct proportion to wasted time. Allowance of such a charge places a premium on inefficient and uneconomical organization and operation of system service companies.

sense may be applied to such costs.[57] In fact, the chief requirement for sound regulation of apportionment of costs is that apportionments shall be based on accepted accounting practices for the treatment of overheads. Good accounting practice requires that a proper unit is selected against which overheads are to be assigned, and that the assignment is made on a fair and equitable basis. The methods of allocation adopted under regulation employ various units against which overheads are assigned and provide for assignment of overheads on a variety of bases.

Methods of Allocation under Regulation. The typical method of allocation employed under regulation is one that adheres to the rule that direct charges shall be made as far as practicable and distributes remaining expenses on the basis of gross operating revenues of the companies receiving services. This method is contrasted with that prevailing before regulation by which all expenses of the service company (for services other than engineering and construction supervision) were distributed on the basis of gross operating revenues.

The proponents of the percentage-of-gross method claim several advantages that would result from its use. The method is simple and does not involve the bookkeeping expenses of more complex methods. A great deal of utility servicing involves "pioneering" and experimentation. If the service company incurs unusual expenses in experimenting with new steam plant designs on behalf of one operating company, that company should not bear all the expenses as a direct charge because the new methods will be available to other companies in the future at much less cost. The proponents therefore argue that the percentage-of-gross method results in a more equitable distribution of the expenses. It is also contended that this method levies charges in a rough approximation to the use of services and that, given a long enough period of time, the direct charge method and the percentage-of-gross method result in practically the same total billings to each company.

The chief justification for using the direct charge method is that it gives reasonable assurance that each operating company will pay in each billing period an amount closely related to the amount of services it receives.[58] This method also provides a basis for itemized bills to operating companies. This feature introduces an additional means of control over servicing. Although this method requires more bookkeeping than the percentage-of-gross method, the rule of the commission does not require refinements that involve undue expense. No injustice is done a particular company that pays the direct costs of "pioneering" because the company must have reasonable prospects of achieving economies greater than the costs of experimentation or it would forego such expenses. It is likely that in the long run each company in the system will have occasion to engage some "pioneering" services and thus each will bear a share of this form of service company expense.

About ½ of the total billings of approved service companies are made as direct charges, the remaining ½ being classified as apportioned charges. A large

[57] Overheads in the accounting sense refer to outlays which cannot be directly assigned to a given unit of work or product and may include expenses for lighting, rent, depreciation, etc., irrespective of whether the outlays are prime or supplementary costs in the economic sense.

[58] From a practical standpoint this consideration is probably controlling on the commission because public opinion and state commissions have for a long time expressed antagonism to methods of allocation that fail to satisfy this requirement.

part of apportioned charges is distributed among operating companies on a percentage-of-gross basis.[59] The direct charge method recognizes that it is impossible to identify all expenses with particular transactions so that they can be directly charged to particular companies and that expenses remaining after direct charges must be distributed on some more or less arbitrary basis. Gross operating revenues provide a reasonable basis for this distribution because revenues furnish a rough measure of the relative demands of the companies for services. Various adjustments have been cited, such as elimination of intercompany revenues, elimination of the cost of purchased energy, and use of sliding scales, which make it possible to give consideration to unusual circumstances obtaining in particular systems.[60]

Other bases are available for distribution of remaining expenses. Columbia Engineering Corp. distributes remaining expenses, 50% in proportion to total operating expenses and 50% in proportion to gross book value of fixed capital of operating companies. The commission noted without comment that the company in using operating expenses instead of operating revenues was following the dicta of the New York Public Service Commission.[61] Operating expenses provide no better basis than revenues. Adjustments may still be required for particular conditions, such as deducting power purchases or allowing for unusual regulatory expenses or other unusual expenses that have no relation to demands upon the service company.

Another basis provides for the distribution of remaining expenses in proportion to direct charges or direct salary charges made to each company. Penn-Western Service Corp. and General Management Corp. employ this basis. The latter company offered the following justification for this method of allocation:

"Its payrolls aggregated approximately 77% of its entire cost and since the services rendered were primarily personal services, the method followed of allocating its costs, Namely: payroll costs for time of employees expended on the affairs of a particular associate or non-associate company, representing direct costs, and all other elements of cost allocated or absorbed pro rata to these direct costs, furnished an equitable allocation in accordance with sound accounting procedure."[62]

This method is adapted to the relatively small service companies which have a large part of total expenses in salaries of employees whose time can be directly charged to operating companies. It is not well adapted to larger companies with several departments because an operating company may incur relatively large direct billings from one department and thus attract to itself overheads which represent expenses incurred by other departments on behalf of other companies. The method is also subject to criticism because the distribution of remaining expenses of the larger service companies to a particular operating company fluctuates greatly from month to month.

[59] Apportioned charges include billings to associate holding companies as well as semi-direct charges. It is impossible to make an exact determination of the amount of apportioned charges that is distributed among operating companies on a percentage-of-gross basis but it is reasonable to state that it constitutes the major part of apportioned charges.

[60] Services such as purchasing, engineering, and construction supervision may require use of measures other than gross operating revenues. For examples of the bases sometimes employed for distributing remaining expenses of such departments see above, p. 176.

[61] The New York Commission had held: "If an arbitrary basis of allocation is to be adopted, distribution in proportion to the operating expenses of subsidiaries would seem more logical than one based upon revenues." (*Re New Rochelle Water Co. et al.*, 20 P.U.R. (N.S.) 212, 220.)

[62] General Mgmt. Corp., Schedule 240, SEC File 49-13 (1939).

Several devices have been introduced which have the effect of assigning a part of remaining expenses to operating companies in a manner that has some relation to the amount of services actually received by the companies. Use of these devices reduces the amount of remaining expenses that must be assigned on the more arbitrary bases.

Some systems employ a method of computing per diem salaries so as to reflect the amount of annual non-productive time of employees.[63] Thus the amount of time normally involved in vacations, holidays, and illness becomes part of direct charges instead of being thrown into "overheads" or remaining expenses. From the standpoint of bringing charges into relation with amount of services received, it is desirable that each operating company bear the expenses of necessary non-productive time of each employee on the basis of each hour of his productive time that is engaged.

"Loading" direct salary charges is a somewhat similar device in that other overheads are assigned to salaries.[64] The advantage of this method is that certain "overheads," such as those identified with a particular department, are assigned to the directly charged salaries of that department. Thus the operating companies are charged for these overheads in relation to their use of the department.

Services may be performed for which direct charges cannot be made to any company. For example, a study might be undertaken on the possibilities of developing a space-heating load for all gas companies. The expenses of the study would not be directly chargeable to any particular company. In some systems of allocation these expenses would be considered overheads, but in others they are billed as semi-direct charges.[65]

Semi-direct charges include all charges which cannot be assigned to a particular company but which can be assigned to a particular group of companies. All systems using semi-direct charges reapportion the charges among constituent companies on the basis of gross operating revenues.[66] Although gross operating revenues are used as a basis of distribution, this method results in charges that bear a closer relationship to services received than do charges that represent a distribution of such expenses among all companies.

Conclusions

Characteristics of systems vary to such an extent that it is impossible to formulate a method of cost allocation which will assure fair and equitable allocations in all its applications. The policy of the commission in requiring that direct charges be made as far as practicable and that remaining expenses be distributed on such bases as gross operating revenues provides as sound a method for over-all application to the problem as can readily be devised. The direct charge method is more clearly in the public interest than the percentage-of-gross method, even though the latter is simpler and somewhat less expensive to the service companies. Billings on the direct charge basis are more closely related to the actual amount of services received by each company and provide a means of showing the specific benefits received by each company for the payments it makes to the service company.

The direct charge method proved to be sufficiently flexible so that unusual

[63] See above, p. 174.
[64] See above, pp. 174–5.
[65] See above, p. 175.
[66] Pub. Util. Eng. & Serv. Corp. further refines this distribution so that if the charge is to gas companies the revenues of the gas department only are considered.

problems of allocation could be met by the introduction of various refinements. This method of allocation has been improved in several instances by the use of special devices. The effect of these devices is to reduce the amount of remaining expenses, which normally are distributed to all companies serviced on some more or less arbitrary basis, and to distribute such expenses among the companies more in accord with the principle that each company shall pay an amount directly related to the amount of services received.

The commission has recently adopted a fundamental change in policy respecting the allocation of costs to holding companies. Briefly, the position of the commission is that a holding company function can not be commingled with a servicing function unless the holding company bears the entire burden of the commingled functions. The policy has been applied to only two service companies as of March 15, 1941. Application of the policy to all companies will probably result in substantial increases in the costs of holding companies. The policy may have even more widespread repercussions on the existing forms of organization of holding companies and service companies. Various systems, faced with the necessity of maintaining large holding company staffs, may find it in their interest to abolish the service company by transferring the experts to the holding company staff and distributing the balance of personnel among the operating companies. The chief advantage of this arrangement from the standpoint of management is that the services performed by the holding company staff would not be subject to existing regulation under Section 13.

This study of the methods of allocations of approved service companies indicates that the improvements and refinements of cost allocation are in limited rather than in widespread use. For the most part these improved methods are extensively employed only by companies recently approved by the commission.[67] The result is that, by the standards of the commission, some companies have better systems of allocation than others. The problem cannot be solved by the promulgation of rules requiring the adoption of particular methods or bases of allocation because the characteristics of each company are so different. The problem can best be solved by reexamination of all methods of allocation to assure that all companies are employing to best advantage the techniques which experience has developed.[68]

[67] This result is to be expected because management and the commission could only develop improvements in cost allocation as they acquired more experience with the problem.

[68] Section 13(d) specifically authorizes the commission to require reallocation or reapportionment of costs. Also, the more recent orders of approval contain a condition to the effect that the commission may require prospective or retroactive adjustments in cost allocations. (See 17 *Journal of Land & Public Utility Economics* 36.)

Economic Background of Cities

By HOMER HOYT*

THE future income and consequently the value of all urban real estate in any given city depends in the first instance on the maintenance and growth of the fundamental sources of employment in that city. Physical structures and city land alike derive their value from their location within convenient access to a stream of income flowing from factories, offices, mines, or stores in that city which support the population and enable them to pay rent for urban sites. When this income stream vanishes or diminishes in volume, as in the case of lumber and mining towns where the timber or ore body is exhausted, the houses and stores in that community immediately lose most of their value. Buildings cannot be moved intact to a distant location at reasonable expense, and the cost of wrecking them usually equals or exceeds the salvage value of the materials. The land remains but its net income-producing capacity disappears when the town no longer has the capacity to support its residents.

Seldom do all sources of employment in a city dry up completely or suffer such serious impairment as did Key West, Florida, when the cigar industry moved away or Leadville, Colorado, when the mines became unprofitable. Nevertheless, all cities are either gaining, declining, or standing still with respect to their ability to maintain the existing volume of employment. If a serious long-run decline occurs in the number of persons gainfully occupied in that city, even if the loss amounts only to 10% of the total number, there will appear a vacant margin of houses, which will, by their competition, weaken the rents and value of all houses. There will also be an almost complete cessation of new building growth except to replace existing structures. Under such circumstances the opportunities for the development of new business enterprises will be limited and the security of mortgages on existing structures will be endangered.

Therefore, the first problem confronting any organization embarking on a program of locating stores or of building or investing in houses or apartments is to analyze the fundamental sources of employment in the cities under consideration and to estimate the volume of employment that may be expected from such sources during the next 10 or 20 years.

The first step in the grading of cities with respect to their employment possibilities is to analyze the fundamental sources of employment. These may be enumerated as follows:

1. Manufacturing, Assembling and Refining. One of the fundamental sources of employment that varies in importance in different cities is manufacturing. Cities are converging points of transportation lines for bringing in raw materials and sending out finished products and they contain pools of labor, power, machinery, and buildings for converting the basic materials of nature into the thousand finished forms demanded by commerce. A given city owes its location for industrial purposes to a strategic position with respect to transportation or raw materials, or to markets for consumer goods, or to cheap mechanical or labor power, or to all combined in varying proportions or degrees. There may be one industry or a whole congeries of related or divergent industries in a

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given city, each of which shares in the advantages to a greater or less extent. Sometimes the location of an industry is determined by historical accident, but once established it may be tied to a spot by the inertia of heavy fixed plant investment. The various factors affecting the future trend of industrial employment in a given city will be considered in an ensuing section.

2. Trade and Finance. Cities are commercial emporiums and distributing centers as well as hives of industry. In discussing trade as one of the fundamental sources of employment in a city, we can consider only trade that draws its support from outside the metropolitan region of the city itself. Manifestly, purely industrial towns like Gary, Indiana, or Hamtramck, Michigan, have a certain quota of retail tradesmen who supply the needs of the industrial workers. But if the primary industry were removed from the city, all these retail tradesmen would vanish, for they have no independent basis for support. In the cases of wholesale trade, of banking and insurance services performed for persons who do not live in the city or its environs, or of retail trade derived from persons who come from outside the metropolitan area, there is a support for a volume of employment that is independent of the industrial base. This only should be considered in the analysis of the trade factor.

3. Extraction of Minerals or Lumbering. The extractive category is relatively unimportant in the case of most large cities, because mining and lumber towns are usually located near sources of raw materials in forest or mountain regions. Nevertheless, where the sole or chief support of a city is derived primarily from a waning natural resource, this factor must be watched with the greatest care.

4. Resort Cities. Some cities, like Atlantic City and Miami, owe their existence primarily to natural advantages that attract tourists. In this case the city is supported, not by goods that are shipped out, or services that are rendered to persons outside the city, but to money that is brought in by tourists and paid to stores, restaurants, hotel keepers, and amusement resorts. Or in other cases, it is derived from retired people who are living on investments or incomes supplied from persons in another city. The fundamental support of resort cities thus comes from other sections or regions of the country.

5. Political Capitals. Employees in political capitals and in state institutions are supported by the taxpayers in the state and their income is thus derived mainly from sources outside the city. From this heading must be excluded local firemen, policemen, and municipal employees performing local services.

6. Educational Institutions. One of the fundamental sources of employment are colleges or universities, where the students come from outside the city. In this case, not only the professors but the local shopkeepers catering to students derive their income from funds sent by parents living outside the city. Under this category, however, must not be considered employment in grade schools, high schools, or colleges serving local students, for their support is derived primarily from the other basic sources of employment in the city.

7. Transportation. Railroad conductors and engineers, Pullman porters, freight handlers, who derive their income in interstate commerce, but who make their residence at a terminal point or a midpoint on the transportation line, are a fundamental source of employment in a city. Under this category would also be included longshoremen, sailors, and sea

captains who are engaged in handling goods shipped outside the city. However, local telephone operators, street car or subway employees, or suburban railway men are not to be included under this head for they derive their income from the other basic factors that support the city.

The foregoing are the main primary sources of employment that give value to all urban real estate in the city. Few cities are supported by one of these categories alone, however, but each city has a different combination of these basic factors. Hence, the second step in our analysis is to determine the extent or degree to which each city is supported by each of the fundamental employment factors in question. This process is called "weighting."

By what process can the number supported by each of the fundamental basic sources of employment be determined? From the United States Census of Manufactures for 1929 can be ascertained the total number employed in manufactures in cities with a population of 100,000 and over, and for smaller cities the number employed in the industries can usually be found by inquiry from the local chamber of commerce or the local banker. From the United States Census of Occupations for 1930, the total number gainfully employed in the city is obtained. Then the percentage of this total number gainfully employed that are engaged in manufacturing pursuits is computed. Thus, if in a given city a total of 100,000 persons were gainfully occupied in 1930 and 25,000 were employed in manufacturing in 1929, then 25% of the total number gainfully occupied are engaged in manufacturing.

It is found, however, that on the average one person is required in the retail trades, the professions, personal service, and public service for every one employed in the fundamental basic sources of employment. Hence, if 25,000 persons are employed directly in manufacturing, then 25,000 other persons are employed as clerks in stores, as teachers, policemen, lawyers, doctors, dentists, building laborers, street car conductors, telephone operators, waitresses, personal servants, etc., who cater to the wants of those employed in the factories. Thus directly or indirectly, industry supports 50,000 of the 100,000 gainfully employed in the city, or ½ of the population, and hence, manufacturing is given a weight of 50. By always doubling the percentage of the total population employed in manufacturing, all those primarily or secondarily supported by the basic factor are accounted for.

Having determined the specific influence of manufacturing, the number employed in mining and railroad or water transportation can likewise be ascertained, and its specific weight ascertained from the Census of Occupations. The specific number supported by state institutions, by colleges and universities, and by resorts must be estimated on the basis of local inquiry in those cities where these factors are important.

Usually manufacturing and trade are the main sources of employment. Since it is difficult to determine the number supported by non-local trade and finance and to separate it from those clerks engaged in local trade, the relative importance or weight for trade is determined by the residual method. That is, the percentage of the total number gainfully employed that are engaged in manufacturing, multiplied by two, to allow for those in service lines supported by manufacturing, plus the percentage of the number employed in mining, state institutions, railroad or water transportation, and in the resort business, similarly multiplied by two, is added together and

subtracted from 100. The remainder is the specific weight for trade. Thus, if in the case already cited, of the 100,000 gainfully employed, 25,000 are industrial workers, 5,000 others are employed in other basic categories (or a total of 30%) with an additional 30% employed in service lines (or a total of 60%), then trade must support a total of 40,000 of the gainfully employed and be entitled to a weight of 40.

Thus, for every city in the United States, it is possible to determine the relative importance of manufacturing, trade, and the other factors, and to ascertain the exact proportion which manufacturing, trade, or resort business contributes to the support of the city. The weights for some of the leading American cities are given in Table I.

The relative importance of each of the basic sources of employment thus varies in American cities. Although most cities are supported mainly by varying combinations of trade and industry, some are primarily industrial and others primarily commercial cities.

Thus Detroit, Dayton, Hartford, Cleveland, Milwaukee, and Baltimore are predominantly industrial cities, whereas New York, Los Angeles, New Orleans, Minneapolis, Kansas City, Omaha, and Portland, Oregon are predominantly commercial centers. Miami and Atlantic City are mainly tourist resorts. Washington, D. C. is supported almost entirely by the activities of the Federal Government. In Chicago, St. Louis, Boston, and Philadelphia there is a fairly equal division between trade and industry. In Springfield, Illinois and Oklahoma City there is an extraordinary diversity of support from industry, mining, trade, and state institutions. Ann Arbor, Michigan is primarily an educational center. Hibbing, Minnesota is purely a mining town, and Gary, Indiana and Johnstown, Pennsylvania are exclusively industrial or steel towns. Akron, Ohio is mainly a rubber center and Schenectady, New York is supported almost entirely by the General Electric Company. Thus towns and cities vary in their basic sources of employment and no two are alike in their composition.

The purpose of breaking down the employment in a city into its fundamental sources is to enable us to analyze the future volume of employment that may be expected from each source. In the rating sheet for cities (see p. 192) there are five grades from 1 to 5. The lowest rating, or 1, is given to cities that have prospects for a permanent decline of 10% in the number employed during the next 10 years. The highest rating, or 5, is given to cities that have prospects for an increase of 10% or more in the volume of employment in the ensuing decade. The grade of 3 is assigned to cities whose employment volume will remain almost stationary. The rating of 2 is given to cities with a prospective decline from 1% to 9% in employment volume, and a grade of 4 is assigned to cities that have prospects for an increase of 5% to 9% in the number gainfully occupied. In all cases, the increase or decline is measured from a normal trend line and recovery from extreme depression or decline from boom periods is not considered except as it affects the long-run trend. It is necessary to analyze the probable employment trend separately for each basic source of employment.

The Rating of Manufacturing Employment

In an industrial city there are frequently many various types of manufacturing industries affected by different types of forces. It is necessary to break down the aggregate employment in manufacturing into its component parts. This

FHA Form No. 2936
(Rev Dec. 15, 1937)

FEDERAL HOUSING ADMINISTRATION

ECONOMIC BACKGROUND RATING FORM

Economic background area _____ Rating _____
(Principal city) (County) (State)

Population—1920 _____ 1930 _____ 193__ _____ (Estimated)

Date of rating _____ made by _____
(Name)

SELECTION AND WEIGHTING OF CATEGORIES

CATEGORIES	NUMBER EMPLOYED (Statistical or estimated)	PERCENT OF TOTAL		CATEGORY WEIGHTS
	Total	100%		100%
Industry		%	×2=	%
Specialty		%	×2=	%
Trade	100% minus sum of other category weights in last column			%

INDUSTRY CATEGORY (Manufacturing, Assembling, Fabricating, and Refining)

	1		2		3		4		5		RATING	WEIGHTED RATING
Predicted Employment Trend	Decline of 10% and over	14	Decline of 1% to 9%	28	Decline of 0% to increase of 4%	42	Increase of 5% to 9%	56	Increase of 10% and over	70		
Diversification	50% or over employed in the largest industry	3	30% to 49% employed in the largest industry	6	20% to 29% employed in the largest industry	9	10% to 19% employed in the largest industry	12	Less than 10% employed in the largest industry	15		
Cyclical Fluctuations Percentage of Minimum to Maximum Employment. 1921 to 1933	Less than 50%	3	50% to 59%	6	60% to 69%	9	70% to 79%	12	80% to 100%	15		
									Category Weight	%×	=	%

SPECIALTY CATEGORY (State Type of Activities)

	1		2		3		4		5		RATING
Predicted Employment Trend	Decline of 10% and over	14	Decline of 1% to 9%	28	Decline of 0% to increase of 4%	42	Increase of 5% to 9%	56	Increase of 10% and over	70	
Cyclical Fluctuations Percentage of Minimum to Maximum Employment. 1921 to 1933	Less than 50%	6	50% to 59%	12	60% to 69%	18	70% to 79%	24	80% to 100%	30	
									Category Weight	%×	=	%

TRADE CATEGORY (Trade, Finance, and Transportation)

	1		2		3		4		5		RATING
Predicted Employment Trend	Decline of 10% and over	17	Decline of 1% to 9%	34	Decline of 0% to increase of 4%	51	Increase of 5% to 9%	68	Increase of 10% and over	85	
Cyclical Fluctuations Percentage of Minimum to Maximum Employment. 1921 to 1933	Less than 50%	3	50% to 59%	6	60% to 69%	9	70% to 79%	12	80% to 100%	15	
									Category Weight	%×	=	%

Sum of Applicable Category Ratings _____ %

SCOPE OF THE MARKET

	1		2		3		4		5		RATING
Degree of Marketability	Poor	20	Limited	25	Moderate	30	Satisfactory	35	Good	40	

ECONOMIC BACKGROUND RATING (Sum of Applicable Category Ratings × Scope of Market Factor) _____

Column Weights Established for "Relative Economic Stability" Feature					

List the cities, towns, villages, and communities included in this economic background area.

[1] Reproduced from *FHA Underwriting Manual*, p. 1843.

TABLE I. RELATIVE IMPORTANCE OF BASIC SOURCES OF EMPLOYMENT IN LEADING AMERICAN CITIES

City	Industry	Trade	Extraction	Specialty Resort
Birmingham, Ala.	38	22	40	0
Los Angeles, Cal.	23	57	5	15
San Francisco, Cal.	35	50	0	15
Denver, Colo.	25	46	0	29
Hartford, Conn.	60	30	0	10
Wilmington, Del.	64	36	0	0
Jacksonville, Fla.	20	70	0	10
Miami, Fla.	15	25	0	60
St. Petersburg, Fla.	0	0	0	100
Tampa, Fla.	48	42	0	10
Atlanta, Ga.	32	58	0	10
Springfield, Ill.	30	35	15	20
Chicago, Ill.	50	50	0	0
Gary, Ind.	100	0	0	0
Indianapolis, Ind.	56	44	0	0
Ames, Iowa	0	20	0	80
Des Moines, Iowa	28	60	0	12
Kansas City, Kans.	90	10	0	0
Topeka, Kans.	30	55	0	15
Louisville, Ky.	57	43	0	0
New Orleans, La.	25	65	0	10
Portland, Me.	25	50	0	25
Baltimore, Md.	60	40	0	0
Washington, D.C.	10	10	0	80
Boston, Mass.	50	40	0	10
Detroit, Mich.	75	25	0	0
Hibbing, Minn.	0	0	100	0
Minneapolis, Minn.	35	65	0	0
Gulfport, Miss.	20	34	12	34
Jackson, Miss.	26	60	0	14
Hannibal, Mo.	70	30	0	0
Kansas City, Mo.	30	70	0	0
St. Joseph, Mo.	55	45	0	0
St. Louis, Mo.	55	45	0	0
Omaha, Neb.	34	56	0	10
Reno, Nevada	15	50	0	35
Newark, N.J.	67	33	0	0
Albany, N.Y.	50	35	0	15
Buffalo, N.Y.	65	35	0	0
Schenectady, N.Y.	90	10	0	0
Troy, N.Y.	67	33	0	0
New York City	40	60	0	0
Greensboro, N.C.	80	20	0	0
Bismarck, N.D.	0	40	0	60
Akron, Ohio	80	20	0	0
Cleveland, Ohio	64	36	0	0
Dayton, Ohio	80	20	0	0
Columbus, Ohio	50	40	0	10
Oklahoma City, Okla.	14	50	16	20
Tulsa, Okla.	16	63	16	5
Portland, Oregon	32	58	5	5
Johnstown, Pa.	100	0	0	0
Pittsburgh, Pa.	60	40	0	0
Philadelphia, Pa.	55	45	0	0
York, Pa.	90	10	0	0
Providence, R.I.	70	20	0	10
Charleston, S.C.	30	25	0	45
Columbia, S.C.	32	38	0	30
Sioux Falls, S.D.	30	70	0	0
Yankton, S.D.	10	55	0	35
Memphis, Tenn.	32	68	0	0
Dallas, Texas	20	70	0	10
Fort Worth, Texas	22	78	0	0
Houston, Texas	30	65	5	0
San Antonio, Texas	17	33	0	50
Salt Lake City, Utah	25	40	20	15
Burlington, Vt.	35	45	0	20
Charlottesville, Va.	26	54	0	20
Seattle, Wash.	30	55	10	5
Parkersburg, W.Va.	75	25	0	0
Charleston, W.Va.	31	29	20	20
Milwaukee, Wis.	77	23	0	0
Cheyenne, Wyo.	30	34	0	36

can be done first by obtaining data from the Census of Manufactures on the number employed in each separate industry. These figures do not reveal individual firms, however. It is desirable also to obtain from the local chamber of commerce the number employed by each firm, not only for the current period, but for as many past years as possible. Such figures reveal not only the number employed in each line of manufacturing but the long-run trend of employment. Further data should be collected on the nature of the product manufactured by each firm, the location of its raw materials and its principal markets, the trend of demand for the product, and the character of the plant. The general factors as to labor supply and local and state taxes should be investigated. In analyzing the employment trend in each line of manufacturing, the following factors should be taken into consideration:

1. The Trend of the National Demand for the Product. The rapid increase in the

national consumption of cigarettes and the decline in the smoking of cigars have resulted in expansion in cigarette factories and a decline in employment in cigar factories.

2. Technological Unemployment. Despite the enormous increase in the demand for automobiles and cigarettes, improved methods of production make possible a greater output per man. Therefore, the volume of employment, which is the vital concern here, does not always increase in proportion to increase in output. This is generally true of all manufacturing industries.

3. Competitive Position of the Firm. The manufacturing plants in a given city are competing with rival plants in the same or other cities. If the given industry is inefficiently managed or has obsolete equipment, or lacks sales outlets, it will lose out in the competitive struggle with other firms.

4. Competitive Advantages of the Location for Each Type of Industry. The critical question as far as any city is concerned is whether the industries already there will remain in the city and new ones will come in, or whether the industries will move away. It matters not if the industry as a whole is prosperous or if the individual firm gains by going to another city. If a large industrial plant moves from a given city and ceases to employ a certain number of workers in that city, it ceases to support employment and real estate values in that city. Accordingly, the probability that the industries will remain in the city must be carefully weighed. Among the factors that tie an industry to a city are large plant investment, heavy fixed capital in new and modern machinery, the presence of a large body of skilled labor, favorable freight rates, convenient access to raw materials, proximity to markets, and low taxes. On the other hand, the factors that tend to drive industry away from a city or make it easy to move in the event of unfavorable conditions are lack of heavy investment in plants, obsolete equipment, a great distance from raw materials and markets, and high taxes.

5. Diversification. It is always an element of danger if all the industrial eggs are in one basket. If 50% or more of the workers in a city are in a single industry, the whole structure of real estate values may collapse if that inudstry moves away or it may suffer a severe decline in the event of a serious cyclical decline in the volume of employment in that industry. Moreover, a single industry town may be more thoroughly controlled either by labor or capital organization, so that real estate may suffer either from low labor purchasing power or from strikes. There is a tendency, moreover, for large industries to scatter their plants in different cities so that their entire output may not be tied up by a strike.

6. Cyclical Fluctuations. Extreme fluctuations in the volume of employment during the business cycle are an adverse factor because they cause corresponding fluctuations in rents and trade in the city with heavy foreclosures during depression periods.

Employment in Trade

The prospects for future employment in trade depend upon the following factors:

1. The extent to which the given city is extending its trade area at the expense of competing cities;
2. The growth or decline of resources and purchasing power in the trade area;
3. The growth or decline of population in the trade area.

The size of the wholesale trade area can be estimated or ascertained by inquiry from the local chamber of commerce.

Employment in Extractive Industries

If a city is dependent upon mines, oil wells, or timber resources, the probable future life of the natural resources must be estimated, and also the extent to which the resources can be utilized at prevailing cost and price levels.

Employment in State Capitals

State capitals are relatively fixed and will not be moved except under extraordinary conditions. Nevertheless, the state may expand or contract the number of its employees, and this fact must be carefully considered.

Employment in Resort Cities

Employment in resort cities is subject to unusual fluctuations. People must live in industrial or commercial cities even in hard times, but they do not have to take a winter or summer vacation in resort cities in years of depression. Moreover, the popularity of resort cities may depend on fashion or prestige, which may rapidly dwindle. Nevertheless, when a city has an exceptional advantage, as location on the Gulf Stream, like Miami, Florida, it may possess a monopolistic position even for recreational purposes.

A balance sheet of employment can be prepared when all the future prospects of employment for each of the separate basic sources of employment are considered, the probable number that will be employed in the city in the next 10 or 20 years estimated for each category, and the total number compared with the present number employed. This future or prospective employed population is the source of all future rents and present urban land values. If this population dwindles or vanishes, the whole structure of real estate values will collapse. Hence the economic background of cities is of fundamental importance in every real estate valuation.

II. Certification of Motor Common Carriers by the Interstate Commerce Commission*

By JOHN J. GEORGE† *and* JOSEPH R. BOLDT, JR.‡

THE first installment of this article contained an analysis of the commission's definition of what constitutes a common carrier. Whether a given carrier does or does not fall in this category is a functional question, expressed in terms of what he holds himself out to do, of his relations with the shipper, and of his relation to the goods he carries, with special consideration of the status of motor carriers operating in conjunction with railroads. This installment will conclude the discussion with an analysis of the factors taken into account by the commission in granting certificates.

III. Factors in Granting Certificates

The process of authorizing motor common carriers involves many determinative factors. For the great initial group of applicants one general factor sufficed—namely, whether they were in bona fide operation when the law went into effect.

A. Bona Fide Operation on June 1, 1935

Motor common carriers who or whose predecessors were in bona fide operation on June 1, 1935 are entitled to a certificate as a matter of right,[59] and without having to meet the statutory and interpretative tests set up for applicants who were not so operating. Successful applicants under this grandfather clause filed application within 120 days after the effective date of the statute. Repeatedly applicants who failed to file thus have found themselves disqualified for a certificate on the bona fide operation basis.

On the applicant rests the burden of establishing both the character and the scope of his operations,[60] as well as the truth of every allegation in the application. Exhibits attached to the application cannot be considered as evidence of operation unless supported by testimony. "Such procedure would deny protestants their right to cross-examination." In the absence of such evidence, applicant cannot be found to have proved any right to a certificate authorizing the continuance of the operations claimed.[61] Further, the commission must be satisfied not only that applicant was in bona fide operation on June 1, 1935, but also that his bona fide operation has existed continuously since transporting the particular commodities specified in the application between the points or within the area covered by the application.[62]

Does offering service on June 1, 1935 constitute bona fide operation on that date? Bona fide operation means first of all *operation;* compliance is not met by mere intention to operate, or by an attempt to operate.[63] On the ineffectiveness of merely offering service the commission recently stated:

"In considering numerous cases presenting like issues we have held that an applicant must have been in actual operation on statutory date, and that a holding out to serve

* For Part I, see 17 *Journal of Land & Public Utility Economics* 82–91 (February, 1941). Footnotes are numbered consecutively with those in the first installment.

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[59] Section 206.

[60] Crescent case, 2 M.C.C. 315 (1937).

[61] Sewell case, 12 M.C.C. 591 (1938).

[62] Boze case, 12 M.C.C. 779 (1938).

[63] B. Franklin case, 1 M.C.C. 97 (1936).

is not sufficient in and of itself to establish bona fide operation as that term is now used in Section 206 (a) in the absence of evidence of operations consistent with such holding out."[64]

The requirement of actual operation is attested by several other cases.[65]

The burden of proof requires continuous operation:

"It is not necessary to prove operations on a fixed schedule or with any specified degree of regularity to establish bona fide operation within the meaning of the 'grandfather' clause, but there must be some evidence that the operation has been sufficiently frequent to preclude any doubt as to continuity of the services. . . ."[66]

Actual operation is not sufficient. Bona fide means, "a thing done in good faith and without fraud or deceit."[67] Holding that Congress did not intend to make compliance with state laws a prerequisite to rights under the grandfather clause, the commission rejected the contention that an applicant's failure so to comply showed him not in bona fide operation.[68]

Clearly one purpose of the use of "bona fide operation" in the statute

"was to deny rights under the 'grandfather' clause to those who, with knowledge of the impending legislation, should make a show of commencing operations, not in pursuance of any well-conceived plan of furnishing transportation service, but for the purpose of thereby securing rights to operate having in themselves a money value. The words may properly be given an even broader application to exclude operations conducted surreptitiously or in disguise or involving some other element of pretense and concealment for the purpose of preventing state authorities from having the opportunity of enforcing statutory requirements."[69]

Operations openly conducted, without pretense, disguise, or concealment—these are the operations contemplated by the act.[70]

The standards thus declared became a precedent by which applicant was denied the certificate in the important case of Brown Motor Freight Lines.[71]

Many of the above criteria for interpreting and applying the phrase "in bona fide operation" were stated by the United States Supreme Court in 1938.[72] The proviso requires absence of evasion, holds insufficient mere physical operation or mere ability to serve as common carrier, and prescribes actual rather than potential or simulated service. But the main point in the McDonald opinion is that bona fide operation *does* bar from federal certification an applicant who had been operating in defiance of a state court decision sustaining the denial of a certificate because his service would put an excessive burden on the highway and "endanger and interfere with ordinary use of the public." The Supreme Court holds that the bona fide operation clause does not extend grandfather rights to anyone whose operations violate state law. Thus the earlier position of the commission[73] that the act does not require compliance with state law as a test for bona fide operation and consequently a grandfather certificate becomes untenable.

Transportation certified on the basis of bona fide operation covers an enormous range as to articles carried, combination of termini between which the transportation is done, and variety in

[64] Loving case, 12 M.C.C. 571 (1939).

[65] Crescent case, *supra* n. 60; Great Falls case, 3 M.C.C. 441 (1937); Dakota case, 3 M.C.C. 621 (1937); Maher case, 3 M.C.C. 479 (1937); *McDonald v. Thompson*, 305 U. S. 263 (1938).

[66] See Index-Digest, 3 M.C.C. 847 (1937) and cases there cited.

[67] Brown case, 2 M.C.C. 667 (1936). Similar conclusions in English case, 3 M.C.C. 739 (1937).

[68] Slagle case, *supra* n. 25.

[69] *Ibid.*

[70] *Ibid.*

[71] *Supra*, n. 67.

[72] *Supra* n. 65.

[73] Slagle case, *supra* n. 25.

routing.[74]

Failure to Establish Bona Fide Operation. On many occasions the claimant of bona fide operation has failed to establish his status. A basic case in the purpose and meaning of the grandfather clause is Gable Transport Company, decided January 25, 1939.[75]

Predecessor of applicant had on December 9, 1935 abandoned his dump-truck transportation of brick, lime, sand, gravel, and cement and engaged in transportation of only petroleum products. Applying for a common carrier certificate under the grandfather clause in February, 1936 the predecessor insisted that ex post facto and therefore invalid would be the commission's denial of authorization to transport petroleum products on the ground that he was transporting other articles on June 1, 1935. The commission answered that the grandfather clause was intended to protect the right of carriers to continue the business in which they were engaged on statutory date and continuously since. Further, it felt obliged to consider the type of service rendered *during the statutory period, which begins on and continues since the statutory date*, and *not to confine consideration to bona fide transportation of particular items on the statutory date.*[76]

Observed the commission,

"Operation as used in the grandfather clause imports to us something definite and concrete as regards both the commodities transported and the routes or territory over or in which the transportation takes place. . . . The clause requires a showing that the carrier was in bona fide operation 'over the route or routes or within the territory for which application is made' on the statutory date and had so operated since that time. . . . Manifestly we cannot comply with the command of Section 208(a) that 'certificates shall specify the service to be rendered' unless such service is identical with service described in Section 206(a) as a condition to the issuance of any certificate whatever."

Consequently, bona fide operation is not established and certification under the grandfather clause is denied.

Commissioner Lee dissented from the above position of his colleagues, Eastman and Rogers, by holding that continuity of operation is the test of bona fide operation, and not continuity in the transportation of the same item or items. Consequently, he insisted the grandfather certificate should issue.[77] Thus the majority of Division 5 clarifies "bona fide operation" as it arises in the form of continuity of operation between statutory date and time of application for grandfather certificate.

A sequel to the Gable decision appeared promptly two days later in Wilkes-Barre Anthracite Co. case.[78] Eastman and Rogers maintained their position in the Gable case by holding invalid grandfather claims of a corporation as

[74] Illustrative cases are: Lincoln case, 12 M.C.C. 184 (1939); Vermont case, 11 M.C.C. 307 (1939); Short Line case, 12 M.C.C. 361 (1938); Rines case, 11 M.C.C. 35 (1938); Bahr case, 11 M.C.C. 513 (1938); B. Cain case, 11 M.C.C. 117 (1938); Patterson case, 12 M.C.C. 312 (1938); Oilfields case, 12 M.C.C. 16 (1939); McCormick's Exp. case, 12 M.C.C. 632 (1938); Auburn Lines case, 12 M.C.C. 385 (1938); Wimberly case, 12 M.C.C. 147 (1938); Wruck case, 12 M.C.C. 150 (1938); Ludwig case, 12 M.C.C. 727 (1938); Kane Tr. case, 12 M.C.C. 404 (1939); Robinson case, 11 M.C.C. 797 (1938); Wilson case, 12 M.C.C. 627 (1938); Taylor case, 11 M.C.C. 619 (1938); Kane case, 12 M.C.C. 773 (1938); Hennis case, 11 M.C.C. 319 (1939); Consol. Frt. Lines case, 11 M.C.C. 131 (1939); Highway Mdse. case, 12 M.C.C. 50 (1939); Lipp case, 12 M.C.C. 389 (1938); Haeckl's Exp. case, 11 M.C.C. 73 (1938); N. Eng. Trans. case, 12 M.C.C. 461 (1939); President Tank Lines case, 11 M.C.C. 413 (1939); Cushman case, 12 M.C.C. 676 (1938); Amer. Carrier Corp. case, 11 M.C.C. 83 (1939); Elliott case, 11 M.C.C. 148 (1939); Union Tr. case, 11 M.C.C. 293 (1939); Ott case, 11 M.C.C. 481 (1938); H. E. English case, 11 M.C.C. 293 (1939); Hemingway Bros. case, 11 M.C.C. 267 (1939); Raymond case, 12 M.C.C. 371 (1938); Pierce Auto Frt. case, 11 M.C.C. 417 (1939); B & E Trans. case, 12 M.C.C. 531 (1939).

[75] 11 M.C.C. 247 (1939).

[76] Italics supplied.

[77] 11 M.C.C. 247 (1939).

[78] 11 M.C.C. 259 (1939).

successor in interest in shifting from transporting beer and ale and various other specified articles as done by predecessor to transporting beer and ale only. Lee concurring rests his agreement on his view of a service-continuity break during and incidental to the transfer of operating rights from individual to partnership to corporation.

A break of 10 weeks in transportation service, while transfer and retransfer of operating rights were being made from a first to a second to a third and even to a fourth owner, destroyed the applicant's claim to a grandfather certificate. The interpretative problem here centered on the statutory phrase "since that time." Relying on the dictionary, the commission held that the phrase means "from a past time, mentioned or referred to, up to the present." The "past time" mentioned or referred to in Section 206(a) is June 1, 1935. Therefore, reasoned the commission,

> "... the matter to be determined in considering whether an applicant is entitled to grandfather rights as a common carrier is whether the operation was bona fide on June 1, 1935, and whether it has been so conducted from that time 'up to the present.' ... Our decisions previously rendered have been based upon such an interpretation."

The abandonment of operations February 20, 1936 was held an interruption of service over which the applicant had control, and therefore he had not and could not prove continuity of service to obtain the certificate sought.[79]

Break in continuity of service of applicant or his predecessor has served to disprove bona fide operation in three other cases,[80] one of them involving a break of approximately five years.[81]

A grandfather certificate was denied for transportation of general commodities over regular and irregular routes between points in five seaboard states because (1) evidence showed that applicant was not the successor in interest to any concern with which applicant's president was hitherto associated; (2) no bills or records were submitted to show that applicant had transported specified articles on or prior to June 1, 1935; (3) letter by president of applicant company said that physical operations did not start till June 15, 1935.[82]

Poor and unreliable records of operations during his many years of transportation, admission that he had performed no service in 1937 and 1938, acknowledgment of some change in articles transported between statutory date and time of application, and noticeable change in routes meantime preclude an applicant from establishing bona fide operation, and brought denial of grandfather certificate for transporting livestock, cement, household goods, and farm equipment between points in three western states.[83] In the conclusion that the commission must be satisfied that applicant "has been continuously since June 1, 1935 in bona fide operation as a common carrier of the commodities covered by the application between the points or within the territory covered by the application" we hear an echo of the Gable pronouncement.

Failure to produce records of bona fide operation on and continuously since statutory date, and great doubt that any such records existed at the time of sale of operative rights covering the period from just prior to statutory date to May 1, 1936 led to denial of certificate.[84]

After the commission had ordered a

[79] Atl. Motor Exp. case, 12 M.C.C. 576 (1939).

[80] Paul case, 12 M.C.C. 102 (1938); Blankenship case, 12 M.C.C. 107 (1938); Lufbin case, 12 M.C.C. 564 (1939).

[81] Lufbin case, *supra* n. 80.

[82] Rel. Motor Lines case, 12 M.C.C. 625 (1938).

[83] Boze case, *supra* n. 62.

[84] Enders case, 11 M.C.C. 278 (1939).

hearing to determine the grandfather rights of an applicant, the absence of witnesses to corroborate exhibits attached to the application (thereby denying protestants the right to cross examine), the failure of applicants, though duly notified, to submit evidence as to their operations, and their failure to show good cause why the hearing should not be continued to a later date as requested by applicants—these procedural irregularities convince even the casual reader that a grandfather certificate was validly denied.[85] These "failures" suggest justification for a railway's opposing the application in its entirety at the hearing, and the opposition of several other protestants urging that particular phases of the operations competitive with their own be disallowed.

Thus the term "bona fide operation" has experienced much evolution. Statutory definition necessarily leaves a great deal to the refinement of administrative and judicial processes. The earlier position of the commission that applicant need not comply with state law to be eligible to federal certification as in bona fide operation has been substantially set aside by the Supreme Court. We find the commission has insisted that transporting the same articles over the same route on application date as on effective statutory date is essential to "bona fide operation." It has also stressed continuity of operation as an indispensable factor, and recognized reliable records and proper procedure as valid evidence establishing the bona fide operation character.

B. De Novo Operations

Applicants for certificates for *de novo* operations must show that public convenience and necessity require the service they propose. This requirement, appearing in Section 1 of the Interstate Commerce Act, was already familiar to the commission when motor carrier jurisdiction was conferred upon it.[86] When the 1935 bill was under consideration some objection was voiced in Congress to the phrase "public convenience and necessity" as basis for certification, but because of extensive use in state statutes and extensive interpretation by state agencies the phrase was retained.[87]

As to the purpose of the phrase, the commission has cited[88] the statement of the Supreme Court in the Texas and New Orleans Railroad case:[89]

"The purpose of Paragraphs 18 and 22 is to prevent interstate carriers from weakening themselves by constructing or operating superfluous lines, and to protect them from being weakened by another carrier's operating in interstate commerce a competing line not required in the public interest."

The commission views the question as

". . . whether the new operation will serve a useful public purpose, responsive to a public demand or need; whether this purpose can and will be served by existing lines or carriers; and whether it can be served by applicant with the new operation or service proposed without endangering or impairing the operations of existing carriers contrary to the public interest."

In this same basic case the commission established several standards for interpreting public convenience and necessity as employed in Section 206(a): First, although the terms "convenience" and

[85] Sewell case, *supra* n. 61.

[86] Early commission experience with the phrase is found in *Atl. & St. A. B. Ry. Applic.*, 71 ICC 784 (1922), and San Antonio & A. P. Ry. case, 111 ICC 483 (1926).

[87] 79 *Cong. Record* 5653 (1935). The slight attention by the commission to definition of public convenience recognizes the futility of seeking any precise meaning of the phrase.

[88] Pan American case, 1 M.C.C. 190 (1936).

[89] 276 U. S. 475 (1928).

Leading interpretative efforts by state agencies are found in *Chi. R. I. & Pac. v. Okla.*, 123 Okla. 190, 126 Pac. 697 (1926); *Re Overland Motor Exp.*, P.U.R. 1920 B 555; *Billings-Sheridan Bus Lines*, P.U.R. 1928 B 816; *Re McCartney*, P.U.R. 1928 C 182; *Red Star Trans. Co. v. Red Dot Coach Lines* (Ky. Ct. of App.), 295 S. W. 419 (1927); *Abbott v. Pub. Util. Com.*, 136 Atl. 490 (1927).

"necessity" are to be taken as a unit, the meaning of each differs from that of the other. Second, "necessity" must be construed liberally. Third, it is undesirable to attempt hard and fast guides, and determination of convenience and necessity must necessarily be based on the merits of each case as it arises. Fourth, competition within reasonable limits is not proscribed by the act, and it may serve a useful purpose; whether it does so serve is to be decided in the particular circumstance of each case. Fifth, it is neither the obligation of the commission nor its province to direct private managerial responsibility to set up new and experimental types of motor service. Sixth, reasonable doubts as to public convenience and necessity may be reasonably resolved in favor of an applicant who filed his application soon after the grandfather date and would have filed within that date had the circumstances been within his control.[90]

That the applicant must shoulder the burden of proving public convenience and necessity was declared in the Pan American case and often repeated since.[91]

In considering alleged proof the commission has a wide discretion,[92] and some guides relative to the pertinence of evidence have been established.[93] The evidence may be documentary or in form of testimony of witnesses;[94] in absence of protests against the application, testimony of applicant without any supporting witnesses may suffice.[95]

Various concepts are employed to determine whether public convenience and necessity exist to warrant a certificate for *de novo* operations. Although these concepts stem from the general, basic concept, they function substantively as factors[96] in that concept—public convenience and necessity.

1. Absence of Transportation Service. This minor factor has been emphasized in authorizing the transportation of various articles on a wide range of route schedules.[97] Approach to the saturation point in establishing motor service accounts for the slight importance of "absence of transportation service" as a basis of certification in the last five years.

2. Inability or Failure of Established Carriers to Provide the Service Proposed. Commission view that regular route common carriers had no particular interest in hauling farm produce and lumber products originating off route and that they were not equipped to haul heavy farm machinery,[98] that a railroad was unable to transport forest and farm products conveniently between specified points,[99] and that some of the established motor common carriers and railways had refused to transport specified beverages led to certification of applicants to perform the service desired.[100] But even the insistence of established carriers that

[90] Pan American case, *supra* n. 88.

[91] Norton case, 1 M.C.C. 115 (1936); Doberer case, 1 M.C.C. 219 (1936); Justice case, 2 M.C.C. 699 (1937); Coffman case, 3 M.C.C. 93 (1937). On proving necessity, see also Boillot case, 6 M.C.C. 540 (1938).

[92] Dixie Greyhound case, 2 M.C.C. 663 (1937).

[93] The value and limitation in letters from prospective shippers for example (Polydys case, 3 M.C.C. 284 (1937)). Identification of those who wish the service proposed (Tognoni case, 3 M.C.C. 156 (1937)).

[94] Marska case, 6 M.C.C. 105 (1938).

[95] Gilbert case, 6 M.C.C. 293 (1938).

[96] For the usual factors figuring in the process of state certification see two articles by John J. George: "Factors in Granting Certificates of Public Convenience and Necessity," 5 *Indiana Law Journal* 243 (1930) and "State Certification of Interstate Motor Carriers," 6 *Air Law Review* 1 (1935).

[97] Zeisloft case, 12 M.C.C. 13 (1938); Moore case, 12 M.C.C. 671 (1938); Rehfuss case, 12 M.C.C. 799 (1938); Dunn case, 12 M.C.C. 597 (1938); Payor case, 12 M.C.C 349 (1938); Benson case, 12 M.C.C. 259 (1938); Mo. Pac. Trans. case, 12 M.C.C. 277 (1938); Frisco Trans. case, 11 M.C.C. 763 (1938); Hiatt case, 12 M.C.C. 651 (1938); Orsine case, 12 M.C.C. 757 (1938).

[98] Gillock case, 11 M.C.C. 263 (1939).

[99] Vaughn case, 11 M.C.C. 424 (1939).

[100] Ancro Frt. Lines case, 11 M.C.C. 478 (1938).

they rather than applicant should be allowed to establish the new service does not disprove public convenience and necessity for authorizing the applicant to institute it.[101] Of course, this "inability or failure to provide" has figured only as a minor factor in public convenience and necessity.

3. Inadequacy of Existing Service. Inadequacy to warrant commission authorization of additional service applied for may be expressed in varying phraseology indicative of the degree of inadequacy: need for the service proposed,[102] definite need,[103] positive need,[104] active public need,[105] demand for the service,[106] public demand[107] or substantial demand.[108]

Need may be expressed in terms of interest to a particular area or group,[109] such as community, workers, shippers of store packages,[110] of cut flowers or plants,[111] apple shippers, coal dealers, and consumers.[112] Need may be evidenced in terms of past business of applicant, or present increase in his business, or future development therein.[113]

Preference (for the proposed service) may be that of passengers,[114] of particular shippers,[115] or of distributors of new automobiles and equipment.[116]

Remedying inadequate service will result from authorizing interchange of shipments with other carriers and elimination of transfer points,[117] motor delivery earlier than by railroad,[118] and more frequent deliveries by motor than by railroad.[119] The commission has viewed the need for proposed service as amply documented or duly attested,[120] established by investigation,[121] or by testimony of applicant,[122] or of witnesses supporting the application.[123]

Although carriers and prospective carriers are improving their estimates of adequacy of existing service, the commission has denied many applications seeking additional service. Such denial may be set forth in observations that many motor carriers are operating on the proposed route and railroads serve most of the points involved in the application,[124] that a specified number of carriers already offer satisfactory service,[125] or that adequate transportation for a particular commodity already exists.[126]

[101] Pan American case, *supra* n. 88; Polydys case, *supra* n. 93.

[102] Cavanaugh case, 12 M.C.C. 594 (1938); Colacino case, 12 M.C.C. 653 (1938); Bluhm case, 12 M.C.C. 753 (1938); Greiser case, 12 M.C.C. 767 (1938); Miller case, 12 M.C.C. 297 (1938); Luckey case, 12 M.C.C. 739 (1939); Tobler case, 11 M.C.C. 517 (1938); Frisco Trans. case, *supra* n. 97.

[103] Batchelor case, 12 M.C.C. 229 (1938); Wilson case, 11 M.C.C. 573 (1938); Gemza case, 12 M.C.C. 701 (1938); Ghormley case, 12 M.C.C. 717 (1938); Howard Johnson case, 12 M.C.C. 373 (1938); Keeney case, 12 M.C.C. 395 (1938); Saner case, 12 M.C.C. 382 (1938); Chambers case, 12 M.C.C. 705 (1938); Parker case, 12 M.C.C. 347 (1938).

[104] Hibler case, 11 M.C.C. 787 (1938).

[105] Duckloe case, 12 M.C.C. 295 (1938).

[106] Dust case, 12 M.C.C. 289 (1938); Newberry case, 12 M.C.C. 761 (1938); Fortuner case, 12 M.C.C. 291 (1938); Bethune case, 12 M.C.C. 239 (1938); Donnelly case, 12 M.C.C. 233 (1938); Mo. Pac. Trans. case, *supra* n. 97; Proll case, 12 M.C.C. 323 (1938).

[107] Wilson case, 12 M.C.C. 261 (1938).

[108] Mattingly case, 2 M.C.C. 663 (1937).

[109] Costich case, 11 M.C.C. 683 (1938); Kobayashi case, 12 M.C.C. 341 (1938).

[110] Jacobwitz case, 11 M.C.C. 778 (1938).

[111] Finck case, 12 M.C.C. 665 (1938).

[112] Vaughn case, *supra* n. 99; Moore case, *supra* n. 97.

[113] Keeney case, *supra* n. 103.

[114] Hiatt case, *supra* n. 97.

[115] Cases in n's 110 and 111 *supra*.

[116] Commerc. Carriers case, 12 M.C.C. 479 (1939).

[117] Moore case, *supra* n. 97.

[118] Jacqua case, 12 M.C.C. 638 (1938); Ill. Cent. case, 12 M.C.C. 485 (1939).

[119] Vaughn case, *supra* n. 99.

[120] Roden case, 12 M.C.C. 729 (1938); Orsine case, *supra* n. 97.

[121] Keeney case, *supra* n. 103; Collett case, 11 M.C.C. 789 (1938).

[122] Gillock case, *supra* n. 98; Coufal case, 11 M.C.C. 459 (1938); also Mo. Pac. Trans. case, *supra* n. 97.

[123] Berryman case, 11 M.C.C. 229 (1939); W. Fisher case, 11 M.C.C. 397 (1939); Vader case, 12 M.C.C. 619 (1938); Edwards case, 12 M.C.C. 502 (1939); Tooker case, 12 M.C.C. 552 (1939).

[124] Gray case, 12 M.C.C. 612 (1938); Colisto case, 12 M.C.C. 415 (1939).

[125] Fox case, 12 M.C.C. 513 (1938).

[126] Burris case, 12 M.C.C. 99 (1938).

Or the adequacy of service may be adjudged on grounds of failure to introduce sufficient testimony of witnesses or other evidence to prove public requirement for the proposed service.[127]

4. Fitness, Willingness, and Ability of Applicant. Section 207(a) requires that the recipient of a certificate of public convenience and necessity be fit, willing, and able to perform the service proposed and to conform to commission rules and regulations. Willingness is usually implicit in the fact of application for authorization, but fitness and ability, more elusive in character, require explicit proof. In so dealing with fitness and ability the commission has developed some criteria.

a. Successful Experience and Efficiency of Applicant. Successful experience of applicant in transportation enterprise figures in more cases of certification *de novo* than does any other factor.[128] Successful experience may be stated as many years, several years, a long period; or a particular number of years ranging from as high as 31 years of experience in motor transportation.[129] Unless disqualifications are revealed a motor carrier who has been successful for five years or more can use that experience as a powerful lever for certification under the federal act. In several cases the fact of long service was accepted as evidence[130] or even substantial proof of public convenience and necessity for the service.[131] Many of the carriers certificated on proof of public convenience and necessity could have obtained the grandfather certificate had application been filed within the 120 days after the statute became effective.[132]

Efficiency may be recognized in terms of capable personnel to perform the service proposed.[133] More often it is expressed in terms of satisfactory service in the past.[134]

Profitable operation in the past may be taken as evidence of successful and efficient service.[135]

b. Financial Ability of Applicant. Financial ability is of major importance. Here precedent of long standing in the states[136] has been duly applied in administering the federal act.

A deficit for the year immediately preceding application for certificate does not disprove financial ability of applicant where the service had been operated for 10 years and prospects of increased business and of aid in refinancing appear tenable.[137] Satisfactory transportation of coal for a considerable period constituted strong evidence of financial ability to

[127] Cases in n's 114–116 *supra;* also Nichols case, 11 M.C.C. 717 (1938); Guerin case, 12 M.C.C. 113 (1938); Brundage case, 11 M.C.C. 187 (1938); Walker case, 12 M.C.C. 94 (1938); and Schwart case, 12 M.C.C. 733 (1938); Rooney case, 12 M.C.C. 669 (1938); Riddle case, 12 M.C.C. 789 (1938).

[128] This factor appears in 48 cases in Volume 12 alone.

[129] Sparks case (operator in New York), 12 M.C.C. 725 (1938); Smith case (Penn. operator), 12 M.C.C. 121 (1938); Watson case (Phila.), 12 M.C.C. 709 (1938); Bluhm case (operating in Ill., Ind., and Mich.), *supra* n. 102; Ross case (operating in Penn. and N. J.), 12 M.C.C. 263 (1938); Hanson case (operating in Conn. and other N. Eng. states), 12 M.C.C. 737 (1938). An applicant railroad company offered as a ground for certification the fact of its 50 years' experience in transportation, 12 M.C.C. 485 (1939).

[130] Georgia case, 6 M.C.C. 601 (1938); Southeastern Motor Frt. case, 6 M.C.C. 301 (1938).

[131] Mishio case, 2 M.C.C. 111 (1936); Sparks and Hanson cases, *supra* n. 129; McCauley case, 11 M.C.C. 523 (1938); King case, *Ibid.* at 799; Sabinis case, 12 M.C.C. 731 (1938); Bennett case, 12 M.C.C. 273 (1938).

[132] For example, Tex. & Pac. Coaches case, 12 M.C.C. 749 (1938); Bonzi case, 12 M.C.C. 719 (1938); Quenneville case, 11 M.C.C. 794 (1938).

[133] Mo. Pac. Trans. case, *supra* n. 97; Holmes case, 12 M.C.C. 377 (1938); Vader case, *supra* n. 123.

[134] Dunn case, *supra* n. 97; Jacobson case, 12 M.C.C. 589 (1938); Edwards case, *supra* n. 123; Smith case, *supra* n. 129; Borup case, 12 M.C.C. 667 (1938); Brace case, 12 M.C.C. 793 (1938); Jacqua case, *supra* n. 118; Tooker case, *supra* n. 123.

[135] Edwards, Brace, and Jacobson cases, *supra* n. 134; Nelson case, 12 M.C.C. 755 (1938).

[136] George, *Motor Carrier Regulation in the United States, op. cit.*, c. 8.

[137] Ohio Valley Bus case, 1 M.C.C. 39 (1936).

continue to do so.[138] By making small profits, purchasing new equipment as needed, providing insurance and earning a living in the enterprise, the applicant satisfied the commission of financial ability.[139] A carrier who had incurred a large indebtedness in purchasing a bankrupt predecessor, in paying on old equipment and buying new, and who made a poor financial showing for the first few months of his newly acquired operations was adjudged financially able because reestablishment of a business usually involves unusual expenses.[140]

Frequently in current cases we find the applicant declared "financially able,"[141] "financially and otherwise able";[142] purchase of equipment and paying for insurance continue to be recognized.[143]

But unsatisfactory financial conditions have disqualified several applicants.[144] Unqualified to operate was adjudged an applicant who had pending against him claims for past operations and who admitted he had no assets and owned no equipment. Of no value was his statement that he could obtain capital to start the proposed operation were the certificate granted.[145]

c. Illegal Operation under the Federal Act. For illegal operation under the act the commission rulings have shown considerable variation. Misunderstanding the law with no willful violation of the act constitutes no disqualification on score of fitness.[146] Although applicants had begun and were continuing operations in violation of the law, and were subject to prosecution therefor, such violation was held no absolute bar to certification, for the resulting deprivation of the public of the much needed service constituted the paramount consideration.[147] In one of these cases 2,000 persons would have been deprived of employment. Suspension in another would have inconvenienced guests arriving at and departing from Idaho's swanky Sun Valley Lodge. Thus must law be tempered with equity!

Though an applicant for federal certificate had failed to get grandfather certificate because his operations were not in good faith, but carried on by concealment and subterfuge with obvious intent to defeat the state laws, he was found fit, and received the certificate.[148]

But applicants have been adjudged unfit. Continuing to operate without authorization despite notice from state authorities and the commission reflects improper respect for the law and falls short of fitness.[149] Similarly unfit is an applicant who operates unauthorizedly before application, or one who is convicted for violating the state law under which he was operating before seeking federal certificate.[150] Failure to understand reasonably the commission rules, and to reveal any sense of responsibility in common carriage enterprise falls short

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[138] Niggli case, 3 M.C.C. 472 (1937).

[139] Mackie & Hudson case, 2 M.C.C. 251 (1937).

[140] Southeastern case, *supra* n. 130.

[141] Sodden case, 11 M.C.C. 760 (1938); Brown case, 12 M.C.C. 663 (1938); Longstreet case, 12 M.C.C. 301 (1938); Perry case, 12 M.C.C. 281 (1938); Conner case, 12 M.C.C. 649 (1938).

[142] Cases in Vol. 11, pp. 459 and 573; Vol. 12, pp. 331, 345, 347, 351, 358, 373, 479, 494, 585, and 739.

[143] Cavanaugh case, *supra* n. 102; Inman case, 12 M.C.C. 693 (1938); Cadden case, 12 M.C.C. 605 (1938); Frisco case, *supra* n. 97; Brace case, *supra* n. 134; Ancro case, *supra* n. 100.

[144] Freligh case, 3 M.C.C. 734 (1937); Montgomery & Atlanta case, *Ibid.* at 161; Parker case, *Ibid.* at 18; Polydys case, *supra* n. 93. In the latter the commission believed that under only exceptionally good fortune could applicant overcome the great difficulty of initial financial handicap, and denied certificate.

[145] N. Mex. Exp. case, 6 M.C.C. 388 (1938).

[146] Wootton case, 1 M.C.C. 489 (1937).

[147] Union Pac. case, 2 M.C.C. 573 (1937); Merit Dress Del. case, 2 M.C.C. 553 (1937); see also cases in 3 M.C.C. at 167, 326, 338.

[148] Brown case, *supra* n. 67.

[149] Barnes & Link case, 2 M.C.C. 449 (1937).

[150] Fox case, *supra* n. 125; Nicholas case, 11 M.C.C. 717 (1938).

of willingness or ability to comply.[151] Not knowing he had a permit from state authority or whether he needed one presented serious question as to fitness to perform the service proposed, but the applicant obtained the certificate because persons residing in the community concerned needed the service.[152]

Thus the grounds for determining fitness, willingness, and ability are cumulative. A particular disqualification may be offset by other factors, or of itself or in combination with others it may lead to denial of certificate.

5. Absence of Protest against the Application. In several cases absence of protest against the application has been taken as evidence of public convenience and necessity and favoring issuance of a certificate.[153] But despite protests from three railways and three motor carriers the commission found public convenience and necessity to require granting the certificate.[154]

6. Effect of Granting the Certificate on Other Carriers. The effect on established carriers of authorizing more service has been recognized by the commission as a matter of prime importance. Railroads or their subsidiaries have received motor common carrier authorization (1) for transporting general commodities, when the proposed service constituted but one phase of a coordinated truck service without injury to other carriers,[155] and (2) for general commodities, when the service was to be supplementary and auxiliary to, and coordinated with railroad service and strictly limited to those phases only.[156]

But the welfare of railroads has appeared prominently in the disposition of a few motor carrier applications. Because no competition with railways would result applications have been granted.[157] Failure of a railroad to support its protest by evidence figured in allowing "competing" service, and even when three railways opposed a motor common carrier application they failed.[158] Where no competition would result to anyone offering the same transportation service, certificates issued;[159] likewise where little or no competition with established carriers would result.[160]

Certificates have been granted where to do so would produce little or no competition with established motor carriers;[161] or produce any competition;[162] or cause competition with any motor, rail, or water carrier.[163]

"Existing motor carriers should normally have a right to transport all traffic which they can handle adequately, efficiently and economically, in the territories they serve without the added competition of a new operation."[164]

IV. Conclusions

In the extensive task of distinguishing common from contract carriers, the commission has faced baffling problems in dealing with some of the subclassifications of common carriers. Primarily this has centered around the meaning of bona fide operation on the basis of which cer-

[151] Daschner case, 6 M.C.C. 337 (1938).
[152] Jackson case, 1 M.C.C. 397 (1936).
[153] Vaughn case, *supra* n. 99; Smith case, 12 M.C.C. 345 (1938); Gillock case, *supra* n. 98; Dust case, *supra* n. 106; Bennett case, *supra* n. 131; Kobayashi case, *supra* n. 109; Longstreet case, *supra* n. 141; Howard Johnson and Wilson cases, *supra* n. 103.
[154] Saner case, *supra*, no. 103.
[155] Ill. Cent. case, *supra* n. 118.
[156] Tex. & Pac. case, 12 M.C.C. 37 (1939).
[157] Wilson case, *supra* n. 130; Kobayashi case, *supra* n. 109.
[158] Edwards case, *supra* n. 123 and Saner case, *supra* n. 103.
[159] Emerson case, 11 M.C.C. 555 (1938); Donnelly case, *supra* n. 106.
[160] Bonzi case, *supra* n. 132; Tooker case, *supra* n. 123; Sodden case, *supra* n. 141.
[161] Colacino case, *supra* n. 102; Orsine case, *supra* n. 97; Vaughn case, *supra* n. 99; Zeisloft case, *supra* n. 97; Quenneville case, *supra* n. 132; Collett case, *supra* n. 121.
[162] Dixon case, 11 M.C.C. 345 (1939).
[163] Smith case, *supra* n. 153.
[164] Bourn case, 3 M.C.C. 765 (1937).

tificates are to issue without applicant's having to *prove* public convenience and necessity for his service.

Bona fide operation means not only ability to serve, or an offer to serve, but actual operation. And this actual operation constitutes bona fide operation only if the operation is void of evasion, fraud, or deceit. Establishing operation merely to obtain operative rights possessing a money value, to beat the deadline of statutorily fixed date, or for any purpose of pretense, disguise, or concealment falls short of bona fide operation.

As a regulatory concept, bona fide operation has been interpreted by the Supreme Court to preclude from federal certification an applicant who has been operating in defiance of state law. Thus federal "enforcement" of valid state motor carrier regulations becomes a reality.

Another "principle" derived from commission experience in issuing "grandfather" certificates is that the bona fide operation established on or before statutory date must have been continuous since the statutory date, and that the service offered on application date must be identical with that in operation on statutory date. Continuity of service is broken by few weeks' delay during transfer of operative rights from one carrier to another. Identical service requirements forbid a change in the list of commodities carried at the former date; routes of operation must be the same, or "within the territory" served on statutory date.

As valid evidence in establishing the bona fide operation character, reliable records, documentary data, and testimony of witnesses have been recognized by the commission, and proper procedure has been clarified.

Applicants who fail to establish bona fide operation character may apply for a certificate *de novo*, granted an adequate showing of public convenience and necessity for the proposed service. Chief doctrines established by the commission as to "public convenience and necessity" stress the public interest concept; recognize that "convenience" and "necessity" are separable terms, and that "necessity" is to be construed liberally; direct that convenience and necessity must be determined on the basis of the merits of each case as it arises; view competition among *de novo* carriers as not proscribed by the act, and capable of serving a useful purpose; consider it beyond the obligation and province of the commission to direct the carriers to institute experimental motor service; and hold that reasonable doubts as to public convenience and necessity may be reasonably resolved favorably to the applicant who filed application soon after grandfather date, and who through no fault of his own failed to file within that date.

Six factors involved in establishing public convenience and necessity clearly appear: absence of transportation service; inadequacy of existing service; fitness, inability or failure of established carriers to provide the service proposed by applicant; willingness and ability of applicant (involving definite subfactors); absence of protest against the application; and effects of certification on other carriers.

Established carriers by being alert to service needs and developments will not be subjected to competition from new operations.

Realities of current economic life are recognized in the radial origin and radial destination of passengers and goods transported, the wide range of goods and commodities carried, the resort to irregular as well as to the earlier regular routes for common carriers, and in the systematizing of seasonal operation. As the authorization work declines, the commission will henceforth proceed to other phases of regulation.

Potential Effects of the Defense Program on Housing

By ARTHUR M. WEIMER*

THE main objective of the defense program is the creation of a military establishment capable of defeating rival military establishments. The pursuit of this objective has set into motion a number of forces, many of which will have significance for the various housing markets and facilities of the country.[1]

To a large extent, housing problems arise at this time because of certain characteristics of houses themselves and of the defense program: (1) houses cannot be moved from place to place, yet defense orders are causing population to shift; (2) the technical job of building houses is a slow and expensive process, yet speed is all important in this program; (3) once built, houses typically last for long periods of time, yet we cannot estimate the duration of this emergency.

The magnitude of the housing problems created by the defense program and its effect on the residential real estate of the country will be determined largely by (1) general governmental policies pursued in planning and executing the entire program in terms of distribution of orders, intensity of the defense effort, and methods of financing used; (2) governmental policies with respect to housing in terms of preferences for public or private programs and defense or general improvement considerations; and (3) the incidence of these policies on the various housing markets of the country and on different types of housing.

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[1] Recent discussions of defense housing problems include: *Housing for Defense* (New York: Twentieth Century Fund, 1940); Homer Hoyt, "Effects of the National Defense Program on Rents and Values," *Review of the Society of Residential Appraisers*, October, 1940; Henry E. Hoagland, "Housing and National Defense," 16 *Journal of Land & Public Utility Economics* 377–81 (November, 1940); Elizabeth Wood, "The Role of Government in Defense Housing," *Ibid.* at 382; and Norman Strunk, "Progress in Defense Housing," 17 *Ibid.* 92–7 (February, 1941).

General Governmental Policies

Although all governmental defense policies are likely to have some effects on our housing resources and their uses, those relating to the intensity of the program, the methods of financing it, and the distribution of government orders appear to be most significant.

1. The Intensity of the Defense Program. We cannot begin to estimate the potential effects of the defense program on housing unless some assumptions are made regarding the general nature of the program. Is it to be an "all out" effort or is it to be planned as something in addition to "business as usual"; that is, are we to have butter and guns or guns at the expense of butter?

All indications now point to an "all out" effort, although we probably have not yet reached this stage. If this is to be an "all out" effort, two periods with different sets of problems lie ahead: (1) the immediate future during which remaining unemployed resources will gradually be brought into use, consumer incomes will tend to be increased, and demand for goods and services of all types, including housing, will advance; (2) a period of full employment when considerations of alternative uses for labor and materials will increase in importance. In this latter stage we shall be forced to choose between butter and guns. In this stage, too, we shall begin paying for the defense

program and the real incomes of consumers throughout the country will begin to decline as a result. Hence, in this second stage, demands for housing facilities in all probability will tend to be curtailed, depending in part on the methods adopted for financing the defense effort and on the relationships between rent and house prices and the prices of other goods and services.

2. Defense Financing. We have already indicated that the demand for housing will be influenced by the method adopted for financing the defense program—taxation, borrowing out of savings, some type of inflation, or combinations of these methods. These various methods of financing will have different effects on the demand for housing, because they affect differently price relations and price levels, which in turn depend on the relationship between the output of goods and services and their rate of final purchase.

The effect is more direct and easier to analyze in cases where taxation or borrowing out of savings represents the main methods of financing. Taxation and borrowing out of savings (other than hoards) resemble each other in that they tend only to *shift* purchasing power from citizens to the government. Thus, borrowing out of savings tends to eliminate funds that consumers might otherwise use as down-payments on houses. However, the over-all dollar rate of final purchasing by citizens and government taken together is not affected. Demand schedules for the goods and services the government is primarily interested in are increased, while those that represent primarily citizens' interests, including houses, are decreased correspondingly. Whether housing would be affected more or less than other avenues of citizen expenditures depends on the elasticity of demand for housing.

Financing of defense activities by expansion of bank credit rather than by taxation or borrowing from savings, on the other hand, would result in a *net addition* to the total flow of dollars spent per period of time by the government and citizens together in the final purchase of goods and services. The effect is the same whether the government borrows directly from the banks or, as was the practice in the last war, sells bonds to the public but permits buyers to finance their purchases through the banks. Although the dollar value of citizens' expenditures is unaffected, that of the government is increased to the extent of the expansion of bank credit. (Of course, consumer expenditures might increase or decrease depending on possible changes in desires for cash balances.) Thus there is a net increase in the over-all rate of final purchase by the government and citizens together which, except as it is neutralized by net increases in the rate of production, can only be met by an increase in the general level of prices. That is, a process of competitive bidding for the available supply of goods and services will take place and bring about increased prices. The largest increases, of course, will occur in the lines required for defense. Similarly, rents in defense centers will move up more rapidly than in other places. Because of the general rise in prices, the real purchasing power of citizens as a group tends to be reduced just as surely as if the financing were by taxation or borrowing from savings. But in this case the process is indirect, and likely to require some time to work out its full effect. Whether at the different stages of the process housing will be affected more or less seriously than other forms of citizens' expenditures can be said to depend on the elasticity of the demand for housing and on the relative rates at which rents and house prices

advance in comparison with changes in the prices of other goods and services.

If inflation is used, the stickiness of house prices may cause a shortage of housing. If taxes are used, this shortage will not appear.

3. The Distribution of Defense Orders. The magnitude of the housing problems created by this program will depend in part on the extent to which the distribution of defense orders coincides or fails to coincide with the existing distribution of population. Prior to the beginning of the program all people were housed in some manner or other. If defense orders did not bring about a movement of people from place to place, housing conditions would be no worse or no better than they were before the program started. In other words, to such housing problems as existed prior to the beginning of the defense program, we have added a whole set of complicated factors arising out of population shifts caused by this program. If we can judge by developments to date, the placing of defense orders is being governed chiefly by considerations other than the availability of housing facilities.[2] Hence, unless governmental policies in regard to the distribution of defense orders in the future are altered, we may expect important population movements, with resulting pressures on the housing supplies of certain centers and declining demands for housing in others.

Government Housing Policies

Despite enactment of legislation[3] and establishment of certain machinery for its administration and for coordinating the housing activities of the Federal Government,[4] no very definite lines of policy have emerged in regard to such questions as the following: (1) Are defense objectives to take precedence over such considerations as the general improvement of housing conditions throughout the country? (2) To what extent are post-emergency factors to take precedence over immediate defense objectives? (3) Is government going to use ordinary market process largely to regulate the construction and use of housing facilities or are more direct programs and a greater amount of regulation to be expected in this field?

1. Defense vs. General Improvement Objectives. Since 1932 the Federal Government has emphasized the desirability of improving the housing conditions of the country. Legislation has been enacted and various agencies created to further housing programs[5] and a considerable amount of public and private activity has been developed. But now the defense program is creating a number of special housing problems. Are government agencies to emphasize those special problems at the expense of the other housing programs developed during recent years? Are both types of programs to be supported, or are the objectives of generally improved housing conditions to take priority over defense objectives? Up to the present time, no very definite policies have emerged. In general, we seem to be compromising—attempting to attain both types of objectives. Probably a choice will be necessary soon. It may be automatic—that is, when we move into a period of full employment and less real income because of the ex-

[2] Strunk, *op. cit.*

[3] Public No. 849, Lanham Act (October 14, 1940); Public No. 781, Title II, §201, Army-Navy appropriations (September 9, 1940); Public No. 671, Title II, USHA defense amendments (June 28, 1940); and Public No. 664, Defense Homes Corporation (June 25, 1940); Public No. 24, Title VI, National Housing Act.

[4] Note especially the establishment of the Defense Housing Coordinator's Office and extension of its powers.

[5] Of special importance are the Federal Home Loan Bank system, the FHA, the USHA, and the work of related agencies.

penses of the defense program, the consequent general decline in the effective demand for housing generally may concentrate attention on housing in defense centers.

Or it may be that we are overemphasizing the magnitude of housing problems in this period. Some 37,000,000 dwelling units are now housing our 130,000,000 people. These facilities plus any new ones constructed will continue to be available for use throughout the emergency, except for those destroyed by accident or by military activity. If defense considerations should force us to limit new construction to those places where real strains had been placed on housing facilities, we probably would not be inconvenienced greatly because we have this large supply of dwelling units on hand. This situation is in marked contrast to problems arising from the production and use of more perishable commodities.

Again, are temporary or permanent houses to be constructed in areas where housing shortages develop because of defense orders? Are renovation, repair, and conversion programs to be stimulated or is emphasis to be placed on building new housing facilities?

Considerations of economy in regard to materials and labor, especially in a period of full employment, argue for large repair and conversion programs and to some extent for temporary structures. Other points of view, especially those involving long range planning, argue for permanent structures.[6] In this connection, much depends on the prospects for permanency of the population shifts brought about by the defense program.

Similarly, are housing policies to be followed with a view to preserving property values and a sound mortgage market, or are immediate defense objectives to dictate the programs adopted without special regard for such long run effects?

At the present time it is not possible to indicate which types of policies are to be followed by the government with respect to these various alternatives. In general, defense considerations tend to be given greater weight and probably will be emphasized at the expense of other programs, if necessary, in the future.

2. Post-Emergency Considerations vs. Immediate Defense Objectives. To some extent we have indicated the conflict between immediate and long range objectives in the above discussion. But it is apparent that in any period of demobilization or of transferring people from defense industries to "ordinary" pursuits, a far-reaching housing program developed on the basis of both private investment and public projects might provide a method for cushioning the shock of the adjustments necessary at such a time. Hence, present housing policies developed by both private and public agencies might be planned with a view to such a future program.

In addition, defense orders might now be planned in such a way as to make readjustment as easy as possible—that is, by drawing people to those places now where their future economic opportunities might be greatest.

Although all these factors have a bearing on our immediate task of attempting to gauge the effects of the defense program on housing, probably few of the governmental policies formulated at this time can be influenced to a great extent by post-emergency considerations because of the difficulty both of immediate problems and of forecasting the post-emergency situation.

[6] Of course, we might take the position that no one deserves better housing than is available for the soldiers for the duration of the emergency.

3. Government Activity and Regulation vs. Private Activity. A number of alternative policies may be adopted in determining the production, allocation, and use of housing facilities in the interests of defense objectives. The following questions indicate some of the alternatives. Is market competition to be relied upon to a predominant extent? Are market processes to be supplemented by special subsidies, taxes, and other devices? Are rent controls to be established? Are housing facilities to be conscripted and space rationed? Is government going to build a large number of houses itself? Will government construction supplement private building programs or supplant them?

In ordinary periods it is the job of private enterprises operating in the housing field to see that the proper amounts of housing are placed on the market and made available for the proper users. This work is done largely through the medium of market competition (within the framework established by law) and these activities are undertaken in the hope of securing a return in the form of profit, interest on investment, rent for land and buildings, or wages and salaries for services rendered.

Market prices are the chief guide and regulator of the production and use of housing facilities under ordinary conditions. The activities of individual producers and consumers provide the main propelling force, although each one affects conditions in the housing market only to the extent that he decides to buy or not buy or buy more or less, sell or not sell or sell more or less, rent or not rent or rent more or less, or engage in other related activities to a greater or lesser degree depending on relative prices, conditions affecting the market, and his own estimate of the probable trend of events.[7]

Even in ordinary times, of course, market competition is governed by various regulations including zoning and land planning laws, building codes, taxes, wage and hour laws, foreclosure laws, and government subsidies, or by direct government construction and ownership of housing facilities.

The forces of market competition may be used to regulate the production and allocation of housing facilities in an emergency period as well as in ordinary times. They may be directed by the use of taxation, subsidies, and various devices such as house registry services for improving the efficiency of the market. In addition, various advertising programs might be developed to facilitate the adjustments necessary. On the other hand, the production and allocation of housing facilities may be determined by direct control of rents and prices, conscription and rationing of dwelling space, systems of priorities for building materials and programs, and construction of additional houses by government agencies. The nature of these alternatives may be illustrated by a brief consideration of rents and rent regulations and of methods for increasing the amount of house building.

Technological considerations prevent any rapid increase in the number of houses in any short space of time but this problem exists whether government action or market competition is used predominantly in making short run housing adjustments. In making such adjustments, rents perform the function of rationing space just as price rations everything in every market. Even though housing markets do not operate as efficiently as the large central commodity

[7] See Weimer and Hoyt, *Principles of Urban Real Estate* (New York: Ronald Press Co., 1939), c. 6. See also C. O. Hardy, *Wartime Control of Prices* (Washington: Brookings Institution, 1940), c. 11.

and security exchanges, rents do rise and fall with changes in demand-supply relationships and govern the intensity with which space is used. Thus higher rents bring about a more intensive use of the available housing facilities.

Although the number of structures cannot be expanded rapidly, many adjustments are brought about by higher rents:

1. Vacant units are brought into use;
2. Families "double up" in existing dwelling units;
3. People "take in roomers" to a greater extent;
4. Existing structures are repaired and renovated and some of them are converted to multi-family uses;
5. The commuting area is enlarged and housing throughout the entire area is used more intensively;
6. High rents tend to discourage incoming workers from moving their families with them.

In addition to these many adjustments made as a result of higher rents, such advances tend to stimulate new construction. Thus, higher rents bring about a series of adjustments more or less automatically. As has been suggested, some of these processes may be stimulated by private or public advertising programs.

However, if rent control laws are established, none of these adjustments are made automatically. They must then be made by direct regulation. Space must be rationed; that is, the available housing resources conscripted and reassigned to the people demanding housing on some predetermined basis such as one person or two persons per room or some other basis. Families occupying large houses may be required to move to smaller quarters, or to take in a stated number of roomers or to share their houses with other families. Otherwise, available space will not meet the demands for it. Workers may be ordered not to bring families with them to an area and similar direct controls may be established. Obviously, many special problems will arise involving administrative difficulties and adjustments to curtailed personal liberties. In many cases landlords will withdraw their properties from the rental market and try to sell them to people who can use them directly; however, those who buy houses will be forced to pay high prices under such conditions unless laws are passed restricting house prices as well as rents. It should be noted that the pressure for rent control laws has been increasing recently.[8] However, the plans proposed typically do not recognize the necessity for rationing space if rents are controlled.

Although the short-run problems of adjusting to sudden increases in the demand for space arise from our inability to add rapidly to the number of structures available, the indefinite duration of the emergency and the uncertainty regarding the permanence of population shifts tend to discourage construction. For meeting such problems market competition may be supplemented by subsidies and guarantees in order to induce private organizations to act more rapidly, and government may build housing facilities directly, or combinations of these programs may be adopted. At present both types of policies are being followed. However, no very definite policies have emerged for determining how much of the new construction undertaken should be carried out by government directly or by private enterprise.

[8] See, for example, releases and bulletins (especially Bulletin No. 7, January 7, 1940, and release of February 5, 1941, PM-44) of the National Defense Advisory Commission for statements by Miss Harriett Elliott, Consumer Commissioner of the National Defense Advisory Commission, and releases of the Division of Defense Housing Coordination for statements by C. F. Palmer, Defense Housing Coordinator.

An act to make mortgage insurance through the FHA more flexible has recently been passed.[9] Various suggestions have been made for stimulating private building, such as making available a greater volume of funds to private operators through the Federal Home Loan Bank system and its subsidiary the HOLC and allowing the RFC to make first mortgage loans on houses of various types.[10]

Public construction of houses has been provided for by such legislation as army and navy appropriations, the Lanham Act, and additional powers granted to the United States Housing Authority.

Incidence of Governmental Policies on Housing Markets and Facilities

In our discussion up to this point, we have noted the significance of alternative government policies regarding the defense program generally and those which might be adopted in the housing field. Wherever possible we have attmpted to point out those policies which appear most likely to be followed. Let us now turn our attention to the possible incidence of these policies on the various housing markets and facilities of the country.

In this phase of our discussion it is important to remember the distinction made above between two future periods. During the immediate future, while more people are being employed and consumers' incomes are increasing, rents and property values will tend to advance gradually and vacancies to decline, but as we reach a period of full employment and begin paying for the defense program there will be a general tendency toward lower real incomes and hence for a decline in the over-all demands for housing, depending in part on the method of financing adopted, as was pointed out above, and of course on specific forces affecting local markets.

It is easy to overstate the possibility of advances in rents throughout the country generally in the immediate months ahead. In the last war, for example, the Bureau of Labor Statistics rent index moved only from 100 in 1914 (on a 1913 base) to 105 in 1918 and to 110 in 1919. The National Industrial Conference Board's rent index showed greater changes, rising from 100 in 1914 (on a 1914 base) to 120 in 1918 and to 138 in 1919. More pronounced advances occurred in the early 1920's. Of course, general indexes have little significance for specific local situations.

Obviously, some towns and cities have been and will continue to be affected more than others as the defense program moves forward. For the purposes of this analysis we may divide them into the following groups:

1. Those in which there is a great concentration of government orders, or a great volume of subsidiary activity generated by government orders, or a sudden need for buildings because of new army camps or new government projects;
2. Those located near enough to centers receiving a large volume of government orders to be affected by them;
3. Those deriving their incomes from non-industrial activities and not located near enough to centers where there is a concentration of defense orders; for example, country towns. (Some centers of this type will lose economic support.)
4. Those supported by industries not affected directly by the defense program —for example, food industries, distilleries, etc.

The first two types are most likely to face serious housing shortages during this emergency period unless they possess large reserves of vacant space. Peo-

[9] Public Law 24 [H.R. 3375], Title VI, National Housing Act.

[10] See *Housing for Defense, op. cit.*, c. 7; Release of February 5, 1941 (DH-11) of the Division of Defense Housing Coordination.

ple will move to such cities in increasing numbers and incomes will advance. In such cities rents and to some extent property values are likely to be affected directly and increased considerably, depending on (1) the extent to which local economic activity is stimulated, (2) the extent to which regulations such as rent controls are adopted, or (3) the volume of building which is carried forward.

Enactment of rent restrictions will artificially limit rents, of course, but property values in terms of sales prices will advance in such cities despite, if not because of, rent controls. If rentable space is not available, as will be likely under most rent control proposals put forth, people may be forced to buy houses—and pay high prices for them. A large amount of building either by private or government agencies may offset the increased demand for housing in cities of this type; however, some time will be required for any substantial additions to be made to existing housing supplies.

Cities and towns falling into the last two groups listed above are likely to be affected by the defense program only to the extent that it brings about general changes that have local effects. In such places rents and values will be affected only indirectly, rising in some cases and actually declining in others, especially after we begin paying the costs of the program. Declining rents are probable in towns from which workers move in order to earn higher wages elsewhere. We must remember that housing markets will be affected by the defense program only in so far as that program sets forces into motion which have direct consequences for the population and incomes of specific communities.

Although rents and selling prices are largely determined locally, interest rates are determined in what amounts to almost a national market, building materials prices are determined in at least regional markets, and wages are influenced by forces extending beyond local areas in view of the increased mobility of our labor supply resulting from improved transportation facilities. Even rents are determined in a broader market than was the case in the last war because of improved transportation facilities—especially the increased use of the motor car and bus. Today some 26,000,000 passenger cars are registered in contrast to 2,300,000 in 1915 and we have some 1,200,000 miles of improved roads as compared with 257,000 miles at that time. However, even though the scope of our housing markets has thus been broadened considerably, the fact remains that the chief factors influencing rents and selling prices are local rather than national in character, and that the effects of the defense program on housing cannot be understood unless each local housing market is considered individually.

In those communities where rents rise, such advances will tend to increase the earnings of properties even more rapidly than the rates at which rents increase because fixed charges such as taxes and interest probably will not change rapidly.[11] As a result, property values in such places will tend to advance rather rapidly.

We should remember that all types of properties will not be affected by the defense program to the same extent, even in towns and cities which develop as important defense centers. Furnished houses and apartments probably will be in a better competitive position than others, at least in the early stages of the defense program, because people moving to such centers will not plan on permanent locations. Rental properties will

[11] Homer Hoyt, *One Hundred Years of Land Values in Chicago* (Chicago: University of Chicago Press, 1933), pp. 377–403.

tend to feel the first impulse of any improvement in local market conditions.

Although uncertainties will act as a deterrent to house buying, the sale of houses will tend to increase in places where rents reach high levels—that is, it will be cheaper to buy than to rent in such cases. If construction costs advance to high levels, existing properties will benefit decidedly, of course, in terms of earning power and value. Many older houses for which there has been no market will become more salable under such conditions, and modernization and repair work will tend to be stimulated.

Although the defense program will lead to increased taxes generally, few if any of these burdens will fall on real properties directly. Most of the taxes arising from the defense program will be levied by the Federal Government, which does not tax real estate. To the extent that state and local taxes are increased, it is probable that other sources of revenue will be tapped because of the heavy tax burden now borne by many real properties. The main effects of taxation on housing will result from declines in the real incomes of consumers.

In the immediate future, interest rates probably will not advance materially. Later, however, interest rates may advance, depending in part on the program for financing the defense effort which is adopted.

We have already suggested that on the basis of the forces now in operation construction costs are likely to continue their upward movement at least during the immediate months ahead. On the other hand, if the over-all demand for housing declines after we reach a period of full employment and heavier taxation, the tendency for construction costs to rise may be halted, depending on the extent to which building labor and building materials are demanded for other purposes.

Coordination of Road and Rail Transport and the Organization of the Trucking Industry:

A Survey

By LUDWIG M. HOMBERGER*

The Importance of Organization among the Carriers

COORDINATION of the different modes of transportation presents an interesting issue in the series of problems which are facing modern economy. This is particularly true as far as freight traffic is concerned; with respect to passenger traffic the problems involved are not so complex. In the realm of freight traffic, coordination in this country has been progressing slowly and without much indication of any important changes in the near future.

In a democratic country much depends on private initiative. There is no doubt an increasing feeling in many quarters that, by government action, the principles of a national transportation policy could be determined more clearly than as now embodied in existing laws; ways and means should be found to promote coordination, to determine the proper place for each mode of transportation and to take appropriate action for insuring that the country's highly developed—many say overdeveloped—facilities are used in the most economical way. Much valuable research has been done and is still being done to determine the basis for such action. The Transportation Board which will be established under the provisions of the Transportation Act of 1940 will undoubtedly make valuable contributions toward a better understanding of the problems involved. The same is true of the transportation study which the National Resources Planning Board is making at the present time. But some time will elapse before the results of such investigations and studies can become the basis for legislative action.

In the meantime, the greater responsibility for handling the important problems involved in promoting modern methods rests with the industries concerned. There might be instances, however, when the general needs make it imperative for the government to know that transportation agencies are ready to fulfill their duties in the nation's interest. This consideration was among those which have been leading to government ownership and operation of transportation services in many countries. For many reasons, everything should be done to avoid such a development in this country. It is worth while to consider what steps are possible to obtain similar results through less drastic methods. Much can be achieved by legislation which empowers government agencies to enforce certain policies by emergency rulings. But such tools would prove to be ineffective without the wholehearted cooperation of the industries themselves.

On the one hand, the industries should be heard before any important steps are taken; they should advise the government on the potentialities of the transportation system, on orders to be issued, and on the probable effects of governmental action; but—and this is much more important—they should, through voluntary action on their own part,

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avoid as much as possible the necessity for government intervention by mandatory rulings. Negotiations between the government and the industries would be without value, however, if the representatives of the industries did not have the authority to speak for all carriers. Without such authority the public could have no assurance that the attitude and performance of the carriers would be in accordance with such policies as were agreed upon by the government and the carrier-representatives. That is the reason why good organization of the industries is of fundamental importance if private operation of transportation facilities is to be vindicated. It goes without saying that adequate organization of the industries grows more essential as the transportation picture becomes more complicated.

In this country and in many others, the organization of the railroad industry is not the most urgent problem at the present time. Where the railroads are operated by the government they need no special representation of their interests. In countries where private ownership is the rule, their interests are usually well represented. The Association of American Railroads is a strong organization which can, in case of need, depend upon the immediate cooperation of all member roads. The presidents of the four main British railroad companies have always maintained close contact and excellent cooperation, particularly when the case of the railroads had to be presented to the government or to the public. The railroad industry is, as a rule, adequately organized.

The degree and strength of organization of the water carriers and of the air operators vary in different countries. Their problems are beyond the scope of this discussion.

The organization of the motor carriers of property presents particular problems because in this comparatively new industry there is everywhere a great number of small operators and it is difficult to draw a proper line between the private carrier and the for-hire operator. Only the problem of the latter is of interest in this case.

As a basis for further discussion of the questions which may arise in the United States, a comparison of the methods adopted in other countries may be of interest. A short description of the present situation in the United States will be presented first.

The American Situation

It seems unnecessary to start with a survey of the well known situation in the motor-carrier industry in this country because such data will occur incidentally in describing the situation existing in other countries. It should only be noted very generally that the industry is regulated by the Interstate Commerce Commission under the Motor Carrier Act of 1935. No uniformity of road and rail rates is prescribed by law, nor aimed at by regulation, but a comparison of the rates charged by the different carriers seems to be an essential factor in rate cases before the commission. Competition among the different modes of transportation is very active; the legislative history of the last few years has proved that all associations in the transportation industry are alert in defending and promoting their interest.

The organization of the trucking industry in the United States is comparatively new.[1] In the late 20's and the early

[1] The writer is indebted to the American Trucking Associations, Inc., Washington, D. C. for information made available to him personally. Also a pamphlet published by this association, "The Story of a National Institution," gives some information about its organization.

30's the trucking industry had no nation-wide organization. Several organizations were being formed to represent the industry at the time when different states started to regulate the motor carrier business. The desirability of a nation-wide organization was felt when the problem of regulation of the motor carriers by the Federal Government was a matter of discussion in all interested quarters. So the American Trucking Associations (sic), Inc. (ATA) was formed. This organization did its first important job under the NRA when the ATA was the administrative agency for the industry. The ATA is in fact the association of the state associations and thus the central organization of the industry, for the state organizations, not individual carriers, constitute the ATA membership. The state organizations represent mainly the for-hire carriers. It can be assumed that not all carriers of this group but a majority of them are represented by the Association. The private carriers which, of course, handle the greatest part of the traffic are members only to a limited extent.

The activities of the ATA[2] include dealing with matters of legislation, representing the industry before courts and regulatory agencies, promotional work, handling public relations, and other general tasks in the interest of the industry. The carriers are under no compulsion to become members of any association as is the case in Germany and to some degree in France. Only the fact that the ATA works in the interest of the industry is the incentive for increasing the membership. Activities of the organization are brought to the attention of those concerned by a well developed publicity program.[3] The membership fees are based on the number of units operated, but there is no indication that the large concerns are dominating the association. The list of the present officers shows that not only representatives of large concerns but smaller operators as well are in important positions. This is true in spite of the fact that at the present time a marked tendency toward consolidating medium-sized trucking firms into large concerns can be observed.

The National Highway Users Conference combines all highway users' interests, including automobile manufacturers, private, common and contract carriers, as well as shippers.

In order to cover the situation as completely as possible, the forwarders[4] should be mentioned briefly. These agencies handle smaller shipments. They undertake assembling by truck, shipping in carload lots over the rails, then distributing by truck again. Thus they pay carload rates to the railroads and charge the customer a rate higher than the carload rate but lower than the l.c.l. rate of the railroads. The determination of their legal status and the regulation of the forwarders are under consideration by Congress at the present time. Recently the forwarders have, for protection of their special interests, formed a new organization, the Freight Consolidators and Forwarders Institute, in Washington, D. C. This organization does not concern itself with the interests of the motor carriers as such but only with the limited common problems of the forwarders.

[2] The ATA has a board of directors and an executive committee composed of a president, 12 regional vice-presidents representing the areas, and 10 divisional vice-presidents representing the most important business activities in the trucking field, such as automobile transporters, cartage operators, common carriers, contract carriers, film carriers, household goods carriers, oilfield carriers (handling oilfield supplies), petroleum transporters, and private carriers. The general manager and his staff are in charge of the Washington office.

[3] The ATA publishes a weekly magazine, *Transport Topics*, Washington, D. C.

[4] Julius H. Parmelee, *The Modern Railway* (New York: Longmans Green & Co., 1940), p. 120 et seq.

Great Britain

The railroads in Great Britain[5] are privately owned. After the World War, the companies, numbering about 120, were amalgamated under the Railways Act of 1921 into four great companies: the London-Midland and Scottish, the Great Western, the London North Eastern, and the Southern Railway companies. These four companies showed good results in the period following the amalgamation. The depression years did not harm them as much as railroads in other countries, since freight traffic did not decrease to such an extent in Great Britain. For a good many years, the road and rail situation[6] has been much discussed, but, under peace-time conditions, no fiscal interest supplied an incentive for government action; there were no railroad bankruptcies which could have led the general public to believe that steps should be taken to regulate motor-carrier competition. Great Britain is therefore the country where, as compared with the United States, France, and Germany, the smallest degree of governmental interference with the trucking industry is to be observed.

The only important step taken was the licensing requirement which came into effect through the Road and Rail Traffic Act of 1933. Under the provisions of this act a license had to be granted to common carriers only when it was in the interest of the public and when the equipment to be put into use did not exceed the traffic needs. Other legislation dealt with wages and safety but no regulation of motor-freight rates of any sort is in existence, whereas railroad rates are still under regulation. In order to compensate the railroads to some extent, the system of agreed railroad charges was sanctioned by the law of 1933 mentioned above. This method deviates from the system of rate-making which was in use until then by the British railroads (it would be called disciminatory in the United States and illegal under existing laws). These agreed rates in Great Britain have to be fixed by an agreement between the railroad company and the individual shipper, and are subject to the approval of the Railway Rates Tribunal. The rates are based not on weight and distance of the individual shipment. They apply to all traffic or a part of the traffic for which this shipper will have to be debited in a certain period. In most cases, they were based on the tonnage of all shipments, irrespective of the nature of the commodities carried, such rates having some similarity with the all-commodity rates in the United States. The latter, however, are published rates and, of course, available to every shipper. Usually the charges per unit are based on the traffic of a previous period. The greatest deviation from the existing conceptions seems to be the case of a chain-store, the agreed rates of which are computed at a percentage of the turnover of the stores. Until the outbreak of the present war a policy of laissez faire was more prevalent in Great Britain than in any other European country.[7]

The British trucking industry is not strongly organized;[8] it is represented by two organizations, the Associated Road

[5] In the following footnotes only the more important sources of information will be cited. W. Rodney Long, *Transport Control Abroad* (Washington: Bureau of Foreign & Domestic Commerce, 1939), p. 155 et seq.; C. E. R. Sherrington, *The Economics of Rail Transport in Great Britain* (London: Longmans), Vol. I, 1928; Vol. II (2d ed.), 1937.

[6] Brig. Gen. Sir Osborne Mance, *The Road and Rail Transport Problem* (London: Pitman, 1940); Clyde B. Aitchison, "State Control of Transport Services and Rates in Great Britain," 201 *Annals of the American Academy* 185 (January, 1939).

[7] Agreed charges were introduced in Canada by the Canadian Transport Act of 1938.

[8] *Modern Transport* (London); *Railway Gazette* (London).

Operators and the Commercial Motor Users Association. The first named association has as members mostly carriers for hire, the membership roll being about 100,000. The Commercial Motor Users Association includes private carriers also. The boundaries between the two are not clearly defined and not all carriers for hire are represented by these organizations. In discussions about the British road situation it is often emphasized that the cooperation between these two associations is not wholly satisfactory. The British Road Federation has a function similar to that of the American Highway Users Conference.

During the present war, the Joint Committee of the Road Haulers National Organizations representing six national organizations has expanded its pre-war activities and is gaining in importance. It is described as endeavoring to direct the policy of the motor-carrier industry on a unified basis designed to eliminate waste and secure a maximum of efficiency. The Road Haulage Consultative Committee set up by the Ministry of Transport in 1940 for the purpose of maintaining a continuous contact between the industry and the government has only consultative functions. The position of this committee is not comparable to that of the Railway Emergency Council which is the government agency in charge of controlling the railroads during this war.

A study of recent speeches and magazine articles published in Great Britain reveals a growing feeling that the lack of a strong, united organization of the motor carriers of property is a disadvantage to the industry. A few remarks about the present emergency situation may illustrate the plight of the motor carriers. Since the outbreak of the war, the railroads have been operated under government control. Interest and dividends are guaranteed and a profit-sharing system agreed upon by the government and the railroads adds to the interest of the Treasury in the financial returns of the railroads. Motor traffic is increasingly restricted because of shortage of imported fuel, home-made substitutes being available to a limited degree only. The restrictions are administered by regional commissioners who are often criticized as not well informed about transportation matters. The government denies emphatically that the treatment of the motor carriers has anything to do with fiscal considerations but in many instances it would seem that a competent, unified organization, representing the whole industry, could be of great value. Nothing in recent reports indicates that anything has been achieved in this direction.

The only promising step seems to be the formation of Traffic Movements, Limited, organized by the Associated Road Operators as a clearinghouse for motor shipments. This new organization is prepared to serve not only the members of the mother-company but outsiders as well. Its task is to mitigate the difficulties arising from the fuel restriction by coordination of motor-carrier services. It will be interesting to watch further developments in the organization of the British trucking industry.

France

The greater part of the French railroad system[9] was privately owned until recently. The Eastern, the Midi, the Northern, the Paris-Lyon-Mediterranean, and the Paris-Orleans Railways had been pri-

[9] M. Closset, "Le Nouveau Régime des Chemin de Fer Français, *Revue Générale des Chemin de Fer* (Paris), 1937, 2 sem., p. 225 et seq.; Herbert E. Dougall, "Public and Private Operation of Railways in France," 201 *Annals of the American Academy* 211 (January, 1939); Long, *op. cit.*, p. 127 et seq.

vate companies. A smaller part of the system had been operated by the French State Railways. Another network, the Alsace-Lorraine Railways, came under state ownership and operation after the World War. Even during the 20's, when the railroads in other countries were making profits, the French railroads showed not very favorable financial results. Their difficulties increased during the depression years when railroad freight traffic was greatly reduced, partly as a result of prevailing economic conditions and partly as a result of the increasing competition of motor carriers.

The French government had undertaken to guarantee the interest and dividends of the private companies and had to pay huge amounts which were mostly raised by borrowing. The decree of August 31, 1937 provided that the two state-owned and the five private companies were to be amalgamated into the French National Railway Company, with the French government holding the majority of the share capital and controlling the management. This became effective January 1, 1938. A vital fiscal interest, therefore, has existed and still exists in the profit and loss accounts of the railroads. The problems of road competition are not merely a matter of regulating competing private industries, but a matter of particular interest for the national treasury.

The number of trucks in France has increased considerably; the figure as of December 31, 1938 was 450,000, which is, of course, not very high as compared with 4,202,367 (4,320,829 on December 31, 1939) in the United States, but is higher than the number of trucks in Germany (325,000), and close to the figure for Great Britain (489,991, including Northern Ireland).[10]

Great efforts have been made in France for a considerable period to coordinate road and rail services[11] and particularly to distribute services on a more efficient basis. This policy applied to passenger and freight services. It should be mentioned in passing that provision was made for an exchange of passenger services between railways and busses. Before the outbreak of the present European war, 9,550 kilometers of railway had been completely closed and 4,941 kilometers partly closed to passenger traffic, and the complete or partial closure of 600 kilometers more was under consideration. Bus services are superseding the railroad services thus discontinued. Considerable economy is reported as a result of these important changes which are affecting about 23% of the total French railway system (which also includes the smaller companies).

Freight traffic has been dealt with similarly. French legislation has produced a number of laws and decrees devised to promote coordination of rail and road freight services. It is beyond the scope of this paper to discuss all the consecutive steps which have been taken by the legislators and the results obtained. The best method of approach in this complex matter seems to be to give a picture of the situation as it existed in the two-year period before the present war.

Rural and urban cartage was not limited. In general, no limitations existed for short distance traffic, but exceptions include limitations which may be imposed by government with respect to bulk traffic when new competition with railroads threatened. The railroads were

[10] *Automboile Facts and Figures* (Washington: Automobile Manufacturers Assn.).

[11] Mance, *op. cit.*, p. 63 et seq.; L. Delanney, "Goods Transport by Rail and Road: Rates and Regulations in France," *Modern Transport* (London), October 7, 1939, p. 5; "Der Stand der Gleichordnung von Eisenbahn und Strassenverkehr in Frankreich," von einem Franzoesischen Eisenbahnfachmann, *Archiv fuer Eisenbahnwesen* (Berlin), 1939, p. 395 et seq.

given preference even over short distances in this case. Long distance carriers had to apply for licenses which indicated the nature and extent of their operations. A particularly interesting feature in the methods adopted in France which has no parallel in any other of the important countries is a system of quotas for the distribution of traffic between road and rail. These quotas were based on the traffic of the two preceding years, unused quotas could be carried forward, and excesses over quotas were permitted upon payment of a toll to the railways. The truck rates for shipments over 100 kilograms (about 220 pounds) have been based, as in Germany, on the principle of equality of road and rail charges. Minimum truck rates had been published. The rate structure consisted primarily of class rates; commodity rates could be introduced upon special permission of the ministry. All these rates had to be more or less identical with railroad rates. At least this was the theoretical assumption, but we are told that rates for high class traffic were somewhat cheaper when shipped by truck. Everything was done to encourage the conclusion, between road and rail carriers, of voluntary agreements relating to rates, divisions of traffic, and quotas, including toll payments for excess quotas.

Undoubtedly a general situation such as this called for a strong organization of the trucking industry. The law provided for the creation of associations of the motor carriers of property for hire which were handling long distance traffic. These associations had to be formed on a regional basis. The membership was theoretically voluntary but, since the associations had many powers and responsibilities, the carrier had not had much choice as to whether to join or not. The greatest incentive had been the discriminatory treatment of non-members as to the level of the transport tax. Non-members had to pay twice as much as members. The associations had to participate in rate-making, the rates thus established being compulsory on all carriers—members as well as non-members. The associations were responsible to the government for their members abiding by the tariffs and by all regulations, including quotas, and the officials of the associations had the right to inspect records and impose fines for offenses, whereas non-members were under government inspection. Controversies between the carriers and the associations were dealt with by regional and national committees. Final decision rested with the Minister of Transport. Until the outbreak of the European war, many of these provisions were not fully brought into effect, and sufficient time had not elapsed to permit any definite conclusions as to how the whole scheme would have worked.

During the war, many restrictions were imposed on motor carriers in France, as in Great Britain, because of the shortage of fuel. The position of the trucking associations was strengthened. Finally, only members of the regional organizations were permitted to handle long distance traffic.

Germany

The main railroads in Germany[12] had been owned and operated by the major German states for a long period. On April 1, 1920 these systems were amalgamated into the German National Railroads, and the Ministry of Transport of

[12] Arthur W. MacMahon and W. R. Dittmar, "Autonomous Public Enterprise," 54 *Political Science Quarterly* 481 (December, 1939); 55 *Ibid.* pp. 25 and 176 (March and June, 1940); Hauptverwaltung der Deutschen Reichsbahn-Gesellschaft, *Wirtschaftfuehrung und Finanzwesen der Deutschen Reichsbahn* (Berlin: Verkehrswissenschaftliche Lehrmittelgesellschaft, 1934); Long, *op. cit.*, p. 140 et seq.

the Reich took over operation of the railroads. When the Dawes plan for settlement of Germany's reparations was put into effect on October 1, 1924, the railroads of the Reich were allotted the payment of a part of the reparation. They had to be operated by a quasi-independent company although ownership still rested with the Reich. Regulatory powers had to be exercised by the Ministry of Transport, but representatives of the creditor powers also had certain rights of control. These rights were repealed in 1930 and the payments by the railroads for reparation purposes were discontinued at the end of 1931. Under the present regime (law of February 12, 1937, amended by the law of July 4, 1939), the railroads were taken over by the government, their operation again becoming one of the duties of the Ministry of Transport. In the latter part of the 20's, the railroads showed satisfactory results; during the depression years they could meet all requirements. In the last few years, freight and passenger traffic increased considerably, so that the financial picture improved correspondingly.

As long as the railroads had been operated by a quasi-independent company, the general atmosphere had not been favorable to strict regulation of motor carriers.[13] Although the government had a great fiscal interest in the returns of the railroads, there was no real burden on the national treasury and so no decisive steps were taken. During this period rate wars and cutthroat competition between road and rail were in evidence.

Since the present regime came into power in 1933, the basis for dealing with the road and rail problem has been not so much the fiscal interest—which has still been a considerable one—but the concept that unregulated competition in transportation and overdevelopment of facilities were not in keeping with the state of order which was to prevail in each economic field. Licensing requirements for existing long distance freight carriers for hire became very strict. No licenses were issued to new operators for a period from August, 1933 to the summer of 1938. Then the traffic needs made an increase in the number of truck operators desirable. But the most important feature in the road and rail development was the tendency to equalize rates. According to the law of June 26, 1935, a new tariff became effective on April 1, 1936. In this tariff classification, rate structure and level of rates were the same as in the railroad tariffs. When this tariff was first published, however, the lower class rates and most of the commodity rates were not available to motor carriers. But from 1938 on, motor carriers were permitted to charge all class rates and almost all commodity rates, thus establishing practically full equality in tariffs. Because of this equalization of rates, the motor carrier could no longer compete by charging cheaper rates, but only by offering other advantages, such as more favorable packing requirements and more individual services. For a certain period, the trucker had also to collect special pick-up and delivery charges but this cumbersome tool to bring about strict parity was later abolished.

The industry is organized in the Reichs-Kraftwagen-Betriebsverband[14] (RKB), a public corporation under the law of June 26, 1935, mentioned above. The status of the RKB as a public corporation, however, does not imply that it is the mouthpiece of the Ministry of Transport. On

[13] Josef Hellauer, *Gueterverkehr* (Jena: Gustav Fischer, 1938); Mance, *op. cit.*, p. 74 et seq.; Emil Merkert, "Der Kraftwagen in der Raumordnung," *Raumforschung und Raumordnung* (Berlin), 1939, p. 194 et seq.

[14] Hauptverwaltung des Reichs-Kraftwagen-Betriebsverbands, *RKB Bericht* (Jena: Gustav Fischer, 1938), p. 6 et seq.

the contrary, the RKB and its officers have publicly criticized not only suggestions made by the railways of the Reich as such but also the policy definitely adopted by the Ministry of Transport. It may be of particular interest to note that the RKB in its official publications does not hesitate to advocate changes in the underlying principle of German regulation—the equality of charges. Here are the same arguments for special motor-carrier tariffs based on the inherent advantages of highway transportation which are advanced in other countries. Experience indicates that the RKB has had considerable success in its efforts to promote the interests of the trucking industry.

The most far-reaching activities of the RKB concern the problems of tariffs. Motor-carrier tariffs, rules, and regulations are published by the RKB. One of its important achievements was repeal of the restrictions on using all items of the railroad tariffs, as already described. The RKB has a very strong position in relation to its members. Membership is compulsory for all long distance operators for hire. Because one of the essential reasons for the formation of an organization of this kind was to secure enforcement of the published tariffs, the RKB has been empowered by law to do the billing and collecting of all freight charges for the carriers. Furthermore, the association has supervisory functions which are exercised by headquarters and district offices and by inspectors on the highways.

The RKB possesses another important instrument that can be used for exerting great influence upon the handling of traffic—namely, the distributing centers for freight traffic. These clearinghouses, 76 of which are in operation, are engaged in listing the shipments offered mostly by forwarding agencies and distributing those shipments to motor carriers which are not serving regular customers. These are called "tramp-carriers." In some cases other carriers which are serving regular customers are given shipments when space is needed. The activities of the RKB were leading recently to a very interesting development. It had become desirable to provide for trucking space in the interest of shippers of less valuable goods and of those who were living in areas with small traffic density which the carriers were not anxious to serve. In order to cover these needs, the RKB has hired a certain number of tramp vehicles and is paying the operators on a ton-kilometer basis. The shipper has to pay the regular published rates to the RKB. The distributing centers do only office work, listing and distributing the shipments as mentioned above. They do not operate platforms or terminals. A newly formed subsidiary of the RKB, however, is undertaking to build terminals for trucks. Other activities of the RKB include the building up of a system of motor-freight traffic statistics. These are designed to give a good picture of the traffic movement by commodities, by distance, and by classes of tariffs.

Finally, it may be of interest to cite the published report of the RKB for 1938[15] which mentions that not only the truck operators but the association as well were called upon to cooperate with the government when important new public works were under construction.

During the present war, the shortage of fuel has made it necessary to restrict motor traffic very severely. Only military transports and shipments which are important for the conduct of the war are permitted on the roads.

Conclusions

This comparative study of the situation of the motor carriers of property in

[15] *Ibid.*, p. 80.

various countries presents a great variety of devices designed to overcome the difficulties arising from an unorganized industry. The extremes are: on the one hand, the compulsory and quasi-compulsory associations in totalitarian Germany and in France when she was still a democracy; and, on the other hand, in Great Britain, the case of an industry not welded together, where even the contingencies of the war did not bring about a strong organization. Between these extremes is the organization of the trucking industry in the United States which is well developed and can claim that it represents not all but the majority of the carriers for hire. It can be assumed that progress in this direction will continue.

The activities of the associations are different. The operation of distributing centers, well advanced in Germany and in an experimental stage in Great Britain, seems to be a useful tool for increasing the influence of the organization upon directing traffic. If the associations are backed by their members and are thus able to speak with authority for them, they can cooperate effectively with the government and other carrier representatives. Only a well organized industry is in a position to avoid the necessity of much government intervention in times of peace and national emergency.

Urban Land Department

MORTON BODFISH, *Editor*

The Need for Better Rental Data

THE housing data of the 1940 Census will soon enable students to throw much light on little explored areas of a major national problem. If past experience is a criterion, the figures for dwelling unit rentals will be the most widely used of all data obtained. This article has as its purpose the indication of the wide range of uses to which rental indices are put and the present inadequacies of these indices.

In setting up rental indices for any community or area, an attempt must be made to estimate the rental value of an owned home. That is, were the owner a tenant, what rental would he be paying for the occupancy of the house? Or were he to rent his home to someone else, what might he expect to get as a fair rental? That such an effort is a practical one is shown by some of the uses to which it has been put.

It has been used to equate incomes of owners and tenants by governmental agencies investigating income trends. It has been used by such research workers in social science as William Ogburn as a general indication of income distribution in order to analyze the relations between income and political alignment ("Income Classes and the Roosevelt Vote in 1932").

The United States Census and the Real Property Inventory have both found it necessary to determine the rental value of owned homes in order to furnish a picture of rentals throughout the country for urban houses. To discuss only rented homes would have resulted in a seriously distorted conclusion because of the widespread ownership of homes in this country. Again, this fusion which is known in the census as "equivalent rental" is one of a series of indicators for a plane-of-living index used to measure the relative attractiveness of localities by Lively and Tauber in their monograph on "Rural Migration in the United States."

There are many other instances of the use of this term which we may call with the Census "equivalent rental" but in most cases it is used as an indicator of income or standard-of-living in lieu of specific information on those categories. In view of the growing importance of income and standard-of-living analysis, it is imperative that the basis for such computations be as accurate as possible. At the present time, however, the methods used for determining the rental value of an owned home are so unstandardized ar l variable that most figures of this kind are highly unreliable and the investigators who assume the data to be accurate are using a tool with flaws that undermine the legitimacy of their conclusions. This can be shown by examination of the methods which have been used in the past.

An effort was made by the Consumer Purchasers Study of 1935 to obtain information on the incomes of the American people. In order to equate the incomes of owners and tenants, it was necessary to determine the rental value of an owned home. This was done by asking owners to estimate the value of a month's rent by comparing their houses with similar ones in the same neighborhood. For owned farm homes a different technique was used. "The value of the year's occupancy was arbitrarily set at nine per cent of the present estimated value of the dwelling on an owned farm except in the Southeast and California where ten per cent was used because of the more rapid depreciation of farmhouses. These percentages were based on interest rates, taxes, depreciation, and a reasonable return on money invested." In estimating present value of the house, its replacement value as estimated by the family was reduced to its present value by taking account of the age of the house and the family's estimate of the remaining years of usefulness.[1]

In the Southeast, where the above study advocates using 10% of the present value as the estimated yearly rental value of an owned farm home, T. J. Woofter, Jr., of the Department of Agriculture, suggests using 6% and Woofter is a leading authority on the

[1] Study of Consumer Purchases, "Family Income and Expenditures," *Miscellaneous Publication No. 339*, U. S. Dept. of Agriculture in cooperation with the Works Progress Administration (Washington, 1939), p. 375.

rural Southeast.[2] The values he discusses are the farmers' estimates for the 1930 Census of the value of their buildings which were probably not carefully distinguished as between market and replacement value. But the difference between 10% and 6% indicates a decided lack of standardized knowledge.

In another study of rural homes Loomis and Leonard of the Department of Agriculture estimate the value of the rent at 10% of the replacement value of the house.[3] This study had its setting in a New Mexican village and thus differs from the Consumer Purchases Study which would have applied 9% to the present value of the house. Loomis and Leonard also took into account interest, taxes, depreciation, and other costs in arriving at their bases. Ten per cent is also the figure used by Lively and Tauber noted above.[4]

For non-farm homes, the United States Census Bureau has attempted to compute a figure known as "equivalent rental" in which the value of an owned home is reduced to a monthly rental figure and thus the average rental of all homes may be computed. Since a figure of this kind combining owners and tenants, if accurate, is of obvious importance to the real estate business, market analysts, sociologists, banks, etc., it is essential that this computation be scientifically established. Unfortunately this is not so. In a letter to the writer Leon Truesdell, Chief Statistician for Population of the Census Bureau, described the technique used to determine equivalent rental of owned homes as follows:[5]

"Such preliminary investigation as we had time to do in preparation for the 1930 census indicated that there was a rather wide range in the actual ratio between rental and market value, and that no uniform ratio would correspond very closely with the local ratios obtaining in various areas. The tabulation groups were therefore set up on the basis of a ratio of 1 to 100, *because this ratio was much more convenient for the coders and for all the various mechanical processes.*" (Italics supplied.)

It is quite clear that the figures obtained as above must be used with caution, yet invariably they are not but rather are accepted at face value and used for precise computations to three places.

However, use of the ratio of 1 to 100 (that is, the value of a house is 100 times the monthly rental) is merely saying that the annual rental is 12% of the value of the house. For a $3,000 house the equivalent rental is $30 per month or 1/100 of the value and this is equal to $360 per year or 12% of the value. This leads us directly to the statement of Dr. Edith E. Wood in "Slums and Blighted Areas in the United States" that "under the commonly accepted 12% of value as a fair rental, $2,000 would be the value of a home renting for $20 per month."[6]

Dr. Wood, in response to a query, explained the derivation of this rule-of-thumb in the following manner:[7]

"Before the World War, the frequently repeated 'rule of thumb' was that *in order to secure a 6% return* on the investment, a house must rent approximately at 10% of its capital cost to the investor (whether built new or purchased and repaired). This did not include any allowance for heat or janitor service. After the war, real estate men said the cost of repairs and taxes had gone up so much that it was necessary to charge 12% in order to clear 6%. In heated apartments of course it comes to 15% or more." (Italics in original.)

It is clear that the 12% concept is merely a point of departure rather than a precise goal. It varies with the type of house, services rendered, local tax conditions, and a myriad of other factors. Shrewd real estate men apply a number of checks before using any set percentage of value in determining the rent of a particular house.

From the above diversity of sources, it is clear that the measurement of the ratio between rentals and values waits upon more information. In any discussion of the ratio it is essential that the basic factors be comparable. The methods mentioned above are not. Present value as described above is not market value, and replacement value is still a third category. Depreciation will vary with its definition as well as with locality. Taxes, interest, and refinancing charges, although

[2] T. J. Woofter, Jr., "Landlord and Tenant on the Cotton Plantation," Works Progress Administration, Division of Social Research, *Research Monograph 5* (Washington, 1936), p. 94.

[3] C. P. Loomis and O. E. Leonard, "Standards of Living in an Indian-Mexican Village," USDA, Bureau of Agricultural Economics, *Social Report 14* (Washington, 1938), p. 47.

[4] C. E. Lively and C. Tauber, "Rural Migration in the United States," Works Progress Administration, Division of Social Research, *Social Monograph XIX* (Washington, 1939), p. 168.

[5] Letter to the writer dated November 22, 1939.

[6] Edith E. Wood, "Slums and Blighted Areas in the United States," Department of the Interior, United States Housing Authority (Washington, 1936), p. 3.

[7] Letter to the writer dated December 2, 1939.

more determinable, are still variables. Owners' estimates of the rental value of their homes are subject to all the fluctuations of subjective appraisals. A recent study of the value of farm homes in Maryland showed that farmers valued their homes higher than did enumerators of the state, except when deliberately trying to underestimate as for the purposes of tax assessment.[8]

A ratio of 1 to 100 may be "reasonably satisfactory for mechanical tabulation purposes" for the Census Bureau or its equivalent "12% of value" may be reasonably accurate, although neither is at present substantiated. Nor is it likely that they will be substantiated until the factors which are being measured are defined precisely. Moreover, it is debatable whether any one ratio can be of real service. Rentals will vary in relation to home values, with the stage of the business cycle, with local market conditions, the type of house, and the value class of the house. (In the case of the last category, the writer has found, through a small personally observed sample, that the moderately priced house tends to bring a higher rental return in relation to value than the more expensive one which is at a competitive disadvantage.)

For all these reasons, it seems clear that no real ratio of rental to value has yet been established and that any such ratio, if it is to be useful, should be determined for geographical areas small enough to permit a generalization throughout the territory covered. Urban homes should be clearly distinguished from rural dwellings. Finally, efforts to determine the ratio by a priori methods will depend on actual conditions for support since, for all useful purposes, the actual operating ratio is the item with which all groups are concerned. To determine this ratio, it will be necessary to continue on a much broader scale some such investigation as was carried on by the Financial Survey of Urban Housing of 1934.[9]

In this survey the relation of rental value to value of rented properties, of estimated rentals to value of owner-occupied houses, and of rental value to home value by type of house was found for 52 cities by comparing information obtained during the Real Property Inventory with financial data gathered directly from owners and landlords. The results of this survey indicate a geographical variation of large extent, a wide variation in the ratio of rental value to actual value of owned and rented homes, and variations as between different types of houses or houses of the same type but with different numbers of rooms.

The results are so unstandardized that no one average seems worth using. A range of 10 to 16% of value was found for the annual rental per owner-occupied dwelling unit in all kinds of dwellings. For one-family rented dwellings, the largest single group, the average was 7.9% of value. These rentals were based on 1933 rentals and 1934 values which did not allow for a fair return on investment. Fair rentals therefore would be higher than the Financial Survey indicated, for actual values drop sharply in a deflationary period. Clearly, however, the Census Bureau's equivalent rental or the ratio of 1 to 100 or Dr. Wood's 12% of value do not yield realistic results for the early 1930's.

The Financial Survey was a limited study. It excluded the largest metropolitan areas and all rural areas. But it did indicate the way in which a valuable and realistic approach can be made to the problem of creating an index of rentals based on true conditions which could be adjusted for changing times and conditions.

It is therefore suggested here that one of the most useful things that might be done with the rental data of the 1940 Census would be to get a sample of the relation of rents to values for all geographical areas of the country. Such a sample could be taken by mail without too great expense and would provide information for localities homogeneous enough to be useful. In lieu of such information, investigators in any particular survey who wish to use a ratio of rentals to values must undertake a similar task before using the equivalent rental data of the Census.

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[8] O. E. Leonard, "Enumerator and Farm Operator Place a Value on the Farm Dwelling," *Rural Sociology*, December, 1938, p. 446.

[9] "Financial Survey of Urban Housing," the Bureau of Foreign and Domestic Commerce, U. S. Dept. of Commerce (Washington, 1937).

Low Rent Residential Areas in a High Rent City

OF THE 19,071 dwelling units in Madison, Wisconsin in the spring of 1939, 3,415 units or about 18% rented for less than $30 per month, whereas only 733 units or about 4% rented for less than $20.

That the supply of low rent housing units in Madison is drastically limited is strikingly emphasized by the fact that cities comparable in geographical area, institutions, and population have a much more generous supply of housing in the low rent ranges. In April, 1935, Terre Haute, Indiana with a total of 19,159 dwelling units had nearly 87% of them in the rent brackets below $30, and South Bend, Indiana, a college town such as Madison, had 76.9% of its 27,382 dwelling units renting for less than $30 in November, 1935. Similar conditions appear in Joliet, Illinois, where in January, 1936 nearly 71% of the city's 17,031 dwelling units were in the low rent ranges.[1]

In fairness to the City of Madison it must be pointed out that between 10% and 25% of all structures in Terre Haute, South Bend, and Joliet were in need of major repairs or were unfit for use as contrasted with an 8% bad housing figure for Madison. Likewise in respect to basic sanitary facilities, 10% to 20% of the dwelling units in the comparison cities lacked baths as contrasted with 5% in Madison. On the other hand, it should be pointed out that the surveys in Terre Haute, Joliet, and South Bend were made in 1935 and 1936, whereas the Madison survey was made in 1939. Fragmentary evidence indicates that Madison rents rose rapidly during these years.

Madison's typical low rent housing unit is characterized by a tenant occupied dwelling space of 3 to 4 rooms used by less than one person per room, on the average. This dwelling is located in a residence erected prior to 1914 which has been subdivided into two or three additional dwelling units. The structure, because it is old, is in need of minor to major repairs. Facilities provided the tenant are adequate in respect to running water and flush toilets; however there is a strong possibility that he will have to share the toilet with other families and will not be sure of access to bathing facilities in 1 out of 5 cases.

[1] Data on "comparison" cities have been taken from the WPA publication *Urban Housing* (Washington: Government Printing Office, 1938).

Specifically, units renting at less than $30 are occupied by tenants in 2,677 instances (or 78% of the 3,415 units reported), whereas owners were listed in only about 19% of the total units studied. Vacancies at 2.8% were somewhat more plentiful than the total city ratio of 1.9.

A majority of the tenants in this rent group live in converted residences which provide 1,263 units (47%), in two-family two-deckers, and in flats over business units of which there are 653 units (24%). Single-family residences account for only 482 units or about 18% of the total supply, whereas all other units represent about 11%.

More than 50% of the residences in this group (1,719 units) have 3 to 4 rooms and more than 1/5 (707 units) offer 2 rooms or less. The concentration of units in the classes between 1 and 4 rooms apparently reflects the predominance of units in converted structures,[2] two-family, two-deckers, and the like.

The limited supply of low rent units and their characteristically restricted layout of rooms has contributed to the crowding of 1.00 to 1.50 persons per room in 503 units or more than 15% of 3,320 low rent units studied. However, serious overcrowding was discovered in an additional 241 units, whose occupancy was higher than 1.51 persons per room. Low rent structures in Madison are old, as may be inferred from the large number of converted residences in this rent class. Nearly 3 of every 4 units (2,496 units) are located in structures erected prior to 1914, and over ½ of the units were put up between 1860 and 1904.

Maintenance of low rent units is apparently kept at a minimum. Almost ¼ of these units were in urgent need of major repairs to structure, and about 5% of them were rated unfit for use. Over ½ of the units studied needed minor repairs, such as paint and plaster. Facilities in low rent housing are at about the same general level of quality as structural condition; 714 units (20.9%) lack baths and more than 30% (1,045 units) share the use of a flush toilet with another family unit.

[2] For an analysis of "Converted Residences and the Supply of Housing" (in Madison, Wisconsin), see the article by Scott Keyes under this title in 16 *Journal of Land & Public Utility Economics* 47 (February, 1940).

Geographical Characteristics

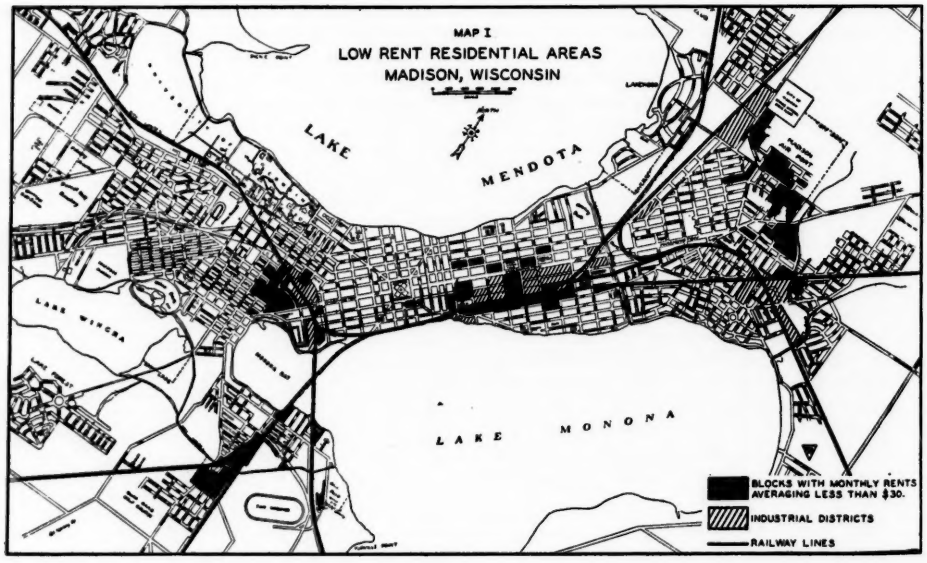
A majority of the dwelling units in Madison renting for less than $30 are scattered throughout the city, appearing here and there predominantly in two deckers, business units, and converted residences. Only 1,630 dwelling units or about 47.5% of the 3,415 units appear clustered in definite rent sectors or groups of city blocks which have rent averages of less than $30.[3] From this point on analysis will be concentrated on these specific low rent sectors, since they are more likely to yield an integrated and measurable sample of low rent housing than are the data on scattered neighborhoods.

Low rent housing sectors in Madison are of two general types. The first, and most important, type consists of old residential sectors at the city's center which have been blighted to slum proportions by the encroachment of expanding industrial and commercial uses, by major traffic arteries, and by railroad switching yards. The second type includes the low rent sectors of the city's periphery which, though free of traffic and commercial nuisances, are rendered undesirable by extensive swamps, small cheap dwellings, and close proximity to nuisance industries. As indicated on Map I, the internal sectors are located at the city's center and cluster about the railway lines.[4] Many industrial and mercantile establishments, loading yards, two terminal stations, and retail units are mixed with old residential structures on both sides of the tracks, particularly in the internal sectors to the east. Similarly to the west, the deteriorating internal residential areas contend with a principal rail terminal, yards and roundhouse, occasional junk yards, warehouses, fuel yards, and light manufacturing units. The undesirability of both internal sectors is increased by the fact that the principal city arterials and through routes converge on them, bringing heavy bus and truck traffic to a majority of their streets.

Periphery low rent sectors to the east and south of Madison present a land-use picture which, though quite in contrast with that of the internal sectors, is, on the other hand, but slightly more desirable for housing. On the eastern fringe a majority of the dwelling

[3] Madison may differ significantly from other cities in this respect. Compare with Homer Hoyt, *Structure and Growth of Residential Neighborhoods in American Cities* (Washington: Federal Housing Administration, 1939), especially Chapter III, p. 27 ff.

[4] The data on which the map and tables are based were taken from the files of the Madison Housing Authority which sponsored a WPA real property inventory of the Madison area between March and September, 1939. The low rent units studied were selected from those city blocks having an average monthly rent for the block of less than the $30.



units are situated on low, semi-swampy land and to the windward of two offensively smelling processing plants, and the city disposal plant and dump are located nearby. Moreover, adequate hard surfaced pavements, water and sewer connections are not available in all cases. The periphery sector to the south, although it does not suffer from industrialization, does have the other peripheral characteristics mentioned above.

Internal Sectors. Housing within the low rent internal sectors includes more than 73% (1,103 units) of the total of 1,622 units which can be identified as parts of well defined low rent areas throughout the city. The conditions revealed by analysis of internal areas therefore are those most typical of concentrated low rent housing sectors in Madison.

Internal sector housing is occupied predominantly (68.4%) by tenants, a proportion considerably above the percentage of tenancy for the city as a whole (Table I). More than 1/3 of the 1,111 units reporting on structure type were in buildings which had been converted from their original unit capacity. The percentage of units in converted structures (33.6%) in these internal sectors is well above the city average of 22.7%. Similarly, the proportions housed in two-family two-deckers, and over business structures are larger than for the city as a whole (Table II).

Since the internal sectors are located in the city's oldest wards, it is not surprising to find that 63% of the 624 structures reported were erected prior to 1904 and less than 13% after 1914. It is clear that demolition and replacement of old structures have not been considered a profitable policy in these transition areas. Thus both partial and complete conversions have been introduced into old dwellings and business structures to meet the low rent demand.

Since the stability of residential uses in these sectors has been very uncertain, general maintenance has been neglected and wide deterioration has set in. Bad order housing[5] now claims 309 or more than 1/4 of all units reported, whereas only 203 units or 18.5% of the total were reported as being in good condition. (Bad order housing in the city at large represents only 8.3% of all units; see Table I.) Because of the excessive number of very old dwellings and the large number of partial conversions in these sectors the proportion of units lacking bathing facilities is unusually high (26%). (Slightly more than 5% of all units in the city lacked baths.) Conversions alone are responsible for the fact that nearly 15% of all internal sector units share toilet facilities with other family units (Table I).

The Periphery. In contrast with the internal sectors, single-family residences predom-

[5] Bad order housing includes all dwelling units which are located in buildings needing major repairs or unfit for use.

TABLE I. LOW RENT SECTORS BY TENURE, CONDITION, AND FACILITIES ABSENT: MADISON, WISCONSIN, 1939

	Combined Sectors Total	Per Cent	Peripheral Sectors Total	Per Cent	Internal Sectors Total	Per Cent
Tenure						
Total Units...	1,622	100.0	519	100.0	1,103	100.0
Owners.....	593	36.6	269	51.8	324	29.4
Tenants.....	988	60.9	233	44.9	755	68.4
Vacant.....	41	2.5	17	3.3	24	2.2
Condition						
Total Units...	1,617	100.0	519	100.0	1,098	100.0
Good.....	378	23.4	175	33.7	203	18.5
Minor repair....	803	49.6	217	41.8	586	53.4
Major repair....	362	22.4	96	18.5	266	24.2
Unfit for use....	74	4.6	31	6.0	43	3.9
Facilities Absent						
Running water..	39	1.2	35	6.7	4	0.4
Bath.....	427	26.2	138	26.6	289	26.0
Flush toilet.....	62	3.8	54	10.4	8	0.7
Share toilet.....	220	13.5	54	10.4	166	14.9

TABLE II. LOW RENT SECTORS BY TYPE: MADISON, WISCONSIN, 1939

Type	Combined Sectors Total	Per Cent	Peripheral Sectors Total	Per Cent	Internal Sectors Total	Per Cent
Total	1,630	100.0	519	100.0	1,111	100.0
Single detached	657	40.5	397	76.5	260	23.4
Single attached	14	1.0	0	0.0	14	1.3
Side-by-side	12	0.8	6	1.2	6	0.5
Two-decker	242	13.7	30	5.8	212	19.1
Three-decker	63	4.0	6	1.2	57	5.1
Four-decker	32	2.1	0	0.0	32	2.9
Apartments	29	1.9	0	0.0	29	2.6
Dwelling-Business Unit	134	8.3	7	1.3	127	11.4
Other converted	9	0.7	8	1.5	1	0.1
Partially converted	224	13.8	32	6.2	192	17.3
Completely converted	214	13.2	33	6.3	181	16.3

inate over all other types in the peripheral areas. The malpractice of residential conversion has extended even to these peripheral sectors and, next to single-family residences, accounts for the largest number of units (Table II). Low rent housing at the city's eastern and southern peripheries is, as might be expected, occupied in a majority of cases by owners. However, this is a bare majority; nearly 45% of the 519 units listed in the peripheral sectors were occupied by tenants. Tenancy may have increased through mortgage foreclosures in recent years, inasmuch as the income ranges in these areas permit budgets with but very narrow emergency margins. On the other hand, speculative building for rent is common in these depressed areas. Another unusual feature of the tenure pattern at the periphery is the rather high vacancy ratio of 3.3, a condition more common in apartment and conversion areas near the center of the city.

In spite of the fact that more than 85% of the 455 low rent peripheral structures surveyed were erected after 1920, nearly ¼ of the units in these structures are now classed as bad order housing. The proportion of unfit housing exceeds that for the internal sectors. However, the proportion of housing in good condition is much higher at the periphery (33.7%) than within the internal sectors (18.5%). The deteriorated state of much of the periphery's relatively new housing is attributable to "jerry" building and either insufficient income for maintenance or mismanagement of depreciation by landlords (Table I).

The most serious indictment of the low rent peripheral areas arises from the semi-rural nature of general sanitary facilities in its housing. Flush toilets are absent from more than 10% of the units reported. Outhouses and occasional septic tanks have partly replaced this lack of inside flush toilets. The basic cause for the lack of flush toilets and sewers rests in the absence of running water which is not installed in nearly 7% of all peripheral units. Bathing facilities were absent in a slightly greater proportion of units than at the city's center (Table I).

Many of these problem conditions at Madison's low rent peripheries are to a certain extent the product of recent annexations by the city of suburban fringe developments which were platted and built up to a great extent outside the jurisdiction of the city building, zoning, and health ordinances. Dates of platting, residence construction, and annexation seem to bear out this conclusion. Moreover, the scattered nature of these developments, in addition to subsoil conditions, made it difficult to extend sewer, water, and gas lines to these areas.

Perhaps the principal significance of the entire low rent sector analysis is that, although housing conditions for the low income groups in most American cities are rarely of good quality and are invariably located in undesirable areas, housing shortages and landlord rent markets such as those in Madison tend to make poor to bad housing more and more expensive, and thus to push slum and blighted areas into higher rent brackets.

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An Example of County Land Management: Lincoln County, Wisconsin*

UNDER Wisconsin statutes, the title to tax delinquent lands reverts to the county after a five-year period during which the tax delinquency may be redeemed. For the past score of years such reversion has taken place on an unprecedented scale in the northern cut-over region of the state. The sweeping reductions of taxable real property which this chronic delinquency has produced have created very serious fiscal problems for local governmental units—school districts, towns,[1] and counties.

It is the thesis of this discussion, however, that the most important and lasting problems resulting from tax delinquency in Wisconsin are *not* the fiscal problems but are those concerning *the management and disposition of the county owned lands.*

These county-land-management problems are greatly intensified by the fact that the laws regarding tax delinquency were formulated at a time when land-use conditions were very different from those of today. As a result, these laws reflect a philosophy toward land use and county land ownership which was centered around two basic points: First, all timber lands were regarded as potential farm lands, waiting only to be cleared. Second, the role of the county in tax-reversion procedures was thought of as a short-time, transient phase of the process. It was scarcely conceived that the county should permanently own and manage the lands coming to it through tax delinquency.

It may be argued that small local units of government such as the county are not the most desirable units to administer large areas of publicly owned lands. Indeed, much historical evidence can be cited to support such a claim. However, the nature of Wisconsin tax laws is such that counties are faced with the practical, immediate problem of managing public land even though involuntarily acquired. What is more, some counties are doing an excellent job. Of these Lincoln county is an outstanding example.

Land Management in Lincoln County, Wisconsin

Lincoln county is located in the north central part of Wisconsin and within the so-called cut-over region. The southern part of the county contains some well developed and profitable farms, but for the most part the county comprises soils suitable principally for forest growth—soils which once supported excellent stands of pine, hemlock, cedar, and other species but which have now been almost entirely stripped of their original timber growth.[2]

The appearance of large-scale tax delinquency following the stripping of the timber from these Lincoln county lands was a feature of the 1920's. In 1921 only 14,680 acres were "sold for taxes," but by 1927 this figure had increased to 113,044 acres, and it grew rapidly after that.[3] For a time *private* buyers or speculators bought in the bulk of these lands. However, tax delinquency began to result in widespread reversion of lands to the county in the late 1920's, reached a climax in the mid-1930's, and has diminished somewhat since then, though it still continues.[4] As a result of this process Lincoln county is at

* Based on information gathered by the author during the summer of 1940 in a survey of the progress of public land management and rural zoning in Wisconsin. The survey was conducted jointly by the Bureau of Agricultural Economics, USDA, and the University of Wisconsin.

[1] The local unit of government which is in many states known as the township is in Wisconsin legally known as the town, following somewhat the New England use of the term.

[2] In the northwest part of the county is an area of more than two survey townships—over 50,000 acres—which is almost completely isolated, containing not a single mile of public road. This region is almost entirely privately owned and contains a limited amount of virgin hemlock timber.

[3] B. H. Hibbard, W. A. Hartman, and W. N. Sparhawk, "Use and Taxation of Land in Lincoln County, Wisconsin," *Bulletin No. 406*, Univ. of Wis. Ag. Exp. Sta., January, 1929, p. 7.

[4] Title to over 6,000 acres passed to Lincoln county through tax deed during the first seven months of 1940.

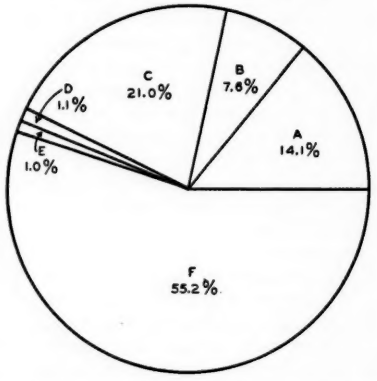
present the owner of some 124,000 acres of land—over 21% of the total area (572,320 acres) of the county.

During the early years of this reversion process the activities of the counties in regard to this land consisted almost wholly of attempts to dispose of it to private buyers in order to get it back on the tax rolls. Even yet this attitude dominates the policy of some counties in northern Wisconsin. However, the experience of the past 10 years has made it abundantly clear that there is little or no market for large areas of such cut-over lands, nor is there likely to be one in the near future. Indeed, the counties could not even give away some lands, since their soils are too light for arable agriculture and their forest crop has been removed and will take years to replace even with the most scientific care.

CHART I

COUNTY LAND OWNERSHIP AND EQUITIES

LINCOLN COUNTY, WISCONSIN, 1940



A. COUNTY OWNED LANDS ENTERED UNDER FOREST CROP.
B. COUNTY OWNED LANDS NOT ENTERED UNDER FOREST CROP.
C. PRIVATELY OWNED LANDS TAX DELINQUENT IN 1940.
D. PRIVATELY OWNED LANDS ENTERED UNDER FOREST CROP.
E. OTHER PUBLICLY OWNED LANDS - FEDERAL, STATE, TOWN AND SCHOOL DISTRICTS.
F. PRIVATELY OWNED NON-TAX DELINQUENT LANDS.

A partial solution of this tax-reverted land problem has been available in the Wisconsin Forest Crop Law,[5] which has been widely utilized by counties wishing to dispose of tax-title lands. As of January 1, 1941 Lincoln county had 80,593 acres of land entered under the provisions of this law. As shown on Chart I, this is 14% of the total land area of the county. Great as has been the benefit of this type of forest legislation, it has still left unsolved a wide segment of the county's land-management problems, for the state Conservation Commission has not been able to accept for entry all tax-title lands which the county might wish to enter. This is attributable in part to the unsuitability of some lands for timber production and in part to a lack of state funds to maintain the per-acre payments to those entering under the forest crop law. As a result, Lincoln county finds itself with some 43,950 acres of land in addition to those which it has entered under the forest crop law.

These lands comprise approximately 8% of the land area of the county and together with the county forest-crop lands they make up well over 1/5 of the total land area of the county. Chart I shows the relative scale of these areas of county land holdings, and it also shows the large area of lands (some 120,000 acres) which were advertised as tax delinquent at the tax sale of 1940. Many of these lands have been tax delinquent for several years and should be regarded as moving definitely in the direction of final county ownership. Others may be redeemed before they are allowed to pass to the county's hands. It is estimated that at least ½ of such tax-delinquent lands are almost certainly headed for eventual county ownership.

The 43,950 acres of county lands which receive no management or supervision through

[5] This law, which applies to privately owned lands as well as to county land holdings, is designed to aid in making the systematic and scientific growing of timber an economic possibility. Lands in units of 40 acres or more are accepted by the state Conservation Commission for entry under the law if they are "more useful for growing timber and other forest crops than for any other purpose." The owner must practice forestry on such lands, and in return the usual property taxes are replaced with a flat annual tax of 10 cents per acre, plus a severance tax at the time the timber is cut. A small per-acre payment is made by the state to the school districts, towns, and counties in which such land is located, in lieu of the foregone property taxes.

To encourage *counties* to enter their lands under the law the state pays them 10 cents per acre for such lands as are accepted by the Conservation Commission. These "county forest crop lands" are the basis of the county forests in Wisconsin. In addition to the county's entries, there were on January 1, 1941, 6,240 acres of privately owned lands entered under the forest crop law in Lincoln county. Chart I shows the relative importance of these private forest-crop lands in the forestry work in the county.

the forest crop law are of most interest in this discussion. For these lands—some of them too poor for profitable timber culture and some having potential value as farms or resort sites—give rise to the most pressing problems of county land management. The lands entered under the forest crop law receive a comparatively high degree of supervision and will continue to do so in years to come, as their forest cover becomes more valuable. But the lands which are too poor for profitable timber growing even under public management present supervisory problems extremely difficult to cope with. Similarly, those lands which the local governing bodies consider of potential value for farming or resort sites are usually not entered under forest-crop contracts since the counties wish to be free to sell them if an opportunity arises. Here again is a problem in public land management which is largely unsolved at present in most cut-over counties.

Bitter as has been their experience during the past decade with the tax delinquency of privately held cut-over lands, local governing bodies are still under constant and severe pressure to sell such lands to get them back on the tax rolls wherever possible. This pressure, more than any other one factor, has been the determining force in moulding whatever land policies counties may have developed for those lands which are submarginal even for timber production and those which are (it is hoped) in a transitional stage from forest to farm or resort use.

Lincoln county has been no stranger to this type of pressure, and it was especially pronounced in the first half of the 1930's. Out of that experience, which included frequent shifts in county land policy and sometimes intense political controversy, the county board (the county governing body) in 1936 hired a full-time agent to aid in selling county lands. The employment of this agent, who was designated County Land Supervisor, marked a break with previous land policy. His duties, together with their evolution and growth, supply the distinctive features of the recent land program of Lincoln county.

This county was not the first, nor is it the only county in Wisconsin, to employ such an agent.[6] The office has had a vigorous development in this county, and it indicates the direction and extent to which other counties might shape their policies toward tax-title lands. For this reason the evolution of the major duties of the land supervisor[7] as real estate broker for the county, as fiscal agent, and as administrator or public land manager warrant description and analysis.

The Land Supervisor as Real Estate Broker for the County

The original reason for employment of the land supervisor was to aid in selling tax-title lands held by the county. Although his duties have multiplied many fold and have extended to new fields, his success in disposing of all possible county-owned lands still plays an important part in the judgment of the county board as to his efficiency.

When the tax deed has been taken and the land transferred to the county, the land supervisor then appraises the land—determining the amount and value of any timber, noting the type and quality of the soil, the presence of any lake or river frontage, and the accessibility of the property to roads and markets. On the basis of this information he fixes a price which becomes the county's asking price for the land. This procedure marks a decided improvement over the policies of some counties which sell tax-title lands at the sum of the delinquent taxes assessed against the land, irrespective of its value or of the value of any timber that may be on it. All inquiries about county lands for sale are referred to the land supervisor, and he accepts application for purchase on a special form on which he makes his recommendations before passing it on to the land committee of the county board.

In selling its lands, the dominant interest of the county is to make a sale that will "stick" rather than one at a high price. Consequently the land supervisor makes a decided effort to interest adjoining or near-by land owners in buying those properties which the county may wish to sell. This is especially

[6] At least five Wisconsin counties now employ an officer similar to the land supervisor described here. They are: Bayfield, Chippewa, Langlade, Lincoln, and Marinette.

[7] A very important part of the work done by the land supervisor is in connection with the details of handling tax sales and in fulfilling the requirements of the law in taking tax deeds. Wisconsin courts have consistently held that every statute relating to tax claimants or tax titles should be strictly construed *against* all tax-title claimants. Hence it is clear that the taking of tax deeds requires great care if they are to be valid.

true if an operating farm happens to lie near the tax-title property, for sale to such a farmer aids in enlarging his farm, which is usually very desirable since many farm units in this region are too small for efficient operation. Such a sale also places the land in the hands of one who is familiar with the agricultural conditions of that region and one who is much more likely to regard his purchase as a permanent acquisition than is a newcomer to the region.

In making a sale, the land supervisor considers:

1. Is the prospective buyer familiar with farming conditions of the region and with the type of agriculture he will have to pursue?
2. Is his financial status reasonably satisfactory or is he likely to become a burden to the county as a relief recipient in the future?
3. Is the location of the property which he wishes to purchase convenient to roads, schools, markets, and stores?
4. Is the buyer likely to demand road improvements or transportation to school for his children?
5. If the land which he wishes to buy is within the county forests, what deed restrictions as to the cutting of immature green timber should be made by the county?
6. If the property lies on section lines, what reservations for possible future roads should be made?

All these things, and many more, are considered by the land supervisor in making his recommendations as to the advisability of the sale, and on occasion he has actually refused to sell county lands, when the sale appeared not to be in the best ultimate interests of the county. This careful attention to the qualifications of the prospective purchaser of tax-title lands is more or less characteristic of the policies of most of the counties in the Wisconsin cut-over region.

When more than one buyer is interested in a specific parcel in Lincoln county, the land supervisor usually advertises for bids on it in a local newspaper. Moreover, as a general policy, the county usually advertises for bids on all its more valuable properties—worth, say, above $200[8] in total value. On occasion the land supervisor may also post "For Sale" signs on properties which the county is anxious to sell.

Official sale of county tax-title land is made by the land committee of the county board, although in practice it relies heavily on the recommendations of the land supervisor. In addition, the chairman of the civil town or the supervisor of the village concerned is usually consulted. When a sale is made, the land supervisor does all the record keeping and clerical work connected with the proper apportioning of the proceeds of the sale and with the transference of the tax certificates to the buyer.[9] The county gives only a quit-claim deed to properties that it sells, and this is executed by the county clerk.

The Fiscal Duties Performed by the Land Supervisor

A natural development of the work of the land supervisor in Lincoln county was that he should interest himself in the procedure of tax assessment, which is the initial link in the long chain of events that may result in tax delinquency and finally in county land ownership under Wisconsin law. His connection with the assessment of taxes has grown to be an important one, and he gives a badly needed continuity to the supervision of local tax assessment. The Wisconsin system of tax assessment comprises district supervisors of assessment, who give great help and technical advice to the local, popularly elected assessing officials. However, the size of the assessment districts over which such supervisors work makes it impossible for them to give detailed attention to the problems of any one local area. The land supervisor as developed in Lincoln county has in many ways filled this gap in the supervision of assessment work, although this phase of his work was not originally planned when the office was first created.

As now organized, the land supervisor regularly attends the annual meeting of the local assessors of the various towns and villages of the county, helping the district supervisor in the instruction of the assessors and in informing them of any changes in procedures or in the statutes. During the time

[8] Land holdings in northern Wisconsin are usually divided into 40-acre tracts. Current prices for most such tracts which have had their timber cover removed range from $40 to $80. An average price would be approximately $1.25 per acre.

[9] Lincoln county makes it a practice to give all remaining tax certificates which it has against a description of land to the purchaser of that description. He may have them officially cancelled, or may simply hold them. Usually four or five such certificates exist for each county-owned tract, covering the taxes for the four or five years between the period of first delinquency and the taking of the tax deed.

that the actual assessment work is under way, the land supervisor is available to answer questions raised by local assessors, to help them with difficult or unusual problems of valuation, or to do actual field work with newly elected assessors during the first few days of their work.

The land supervisor attends all board of review meetings and is officially charged with preparing the list of properties which have been illegally assessed or taxed—through incorrect survey descriptions, errors in assessment, or because they were state or federally owned or otherwise tax exempt. He submits this list to the Illegal Tax Committee of the county board, which in turn submits it to the county board for official cancellation of the taxes on such properties.

In addition, the land supervisor, who has a desk in the county treasurer's office, aids to a considerable extent in the work of that office, in answering questions, making out receipts, and in helping during the "rush" periods.

The Emergence of the Role of County Land Manager

Not all county-acquired lands can be sold, but some of them can be rented, often for rather substantial sums. Since any income is preferable to no income, such rentals have increased and they now form a rather important part of the public land-management picture in Lincoln county. The Merrill (county seat of Lincoln county) branch of the Montgomery Ward Company's retail stores is housed in a building rented from the county. In another town in the county, Tomahawk, the hall of the Eagles' lodge is owned by the county. Several score of urban residential properties are county owned and let for rent, as are a number of rural residences and farms. The rentals on such properties vary markedly in amount and reflect the numerous and sometimes conflicting motives underlying the land supervisor's decision as to what rent should be charged. These motives can be classified as follows:

1. In some cases the desire of the county is to establish title to the property by persuading the previous owner to pay it rent. In such cases the *amount* of the rent is relatively unimportant and is sometimes quite small.
2. In other cases the county may charge rents comparable with those received by private real estate owners.
3. In still others, it is to the county's advantage to have some one occupying isolated residences and farmsteads to prevent vandalism and to meet insurance requirements. In such cases the rent charged may be a mere token rent or the properties may even be occupied rent-free.
4. It is often the case that pensioners or relief recipients are occupying county-owned properties. In such cases the county usually charges them a greatly reduced rent compared to what it would charge non-public dependents or self-supporting renters. The reason is that, in determining the amount of money which a relief client or pensioner needs or should receive, consideration is given to his necessary living expenses of which rent is one. If the county charges such persons a high rent, it is simply reflected in a higher relief payment by the public to the individual and swells the total of moneys spent for relief.
5. The land supervisor has also found it advisable at times to enter into rental or leasing contracts with individuals, under the terms of which they are given an option to purchase, for a very nominal sum, lands on which they have paid a certain number of years' rent—usually five. In such cases it is usual to make some requirements specifying that actual residence shall be established on the property and that some improvements shall be made thereon. The result is an arrangement which resembles somewhat the "homestead" laws of an earlier day.

Income to the county under rental and leasing programs goes into the county general fund and is not in any part distributed to the towns or villages in which such properties may be located and by which they would be taxed were they privately owned.

In supervising the rented rural and urban properties, the land supervisor enters into a new field of activity—one that reflects the policies of the county not as a dispenser of real estate, but as a landlord with definite management problems. The sales motive may sometimes be present but it is a distinctly minor one and in many cases nonexistent. For this reason the extension of this type of activity on the part of the county seems very important in its implications for the future.

Further extension of managerial activities includes the carrying of insurance against fire, tornado, and windstorm on all the more valuable county-owned, tax-title properties as well as on other county buildings. Lincoln county utilizes the facilities of the Wisconsin State Insurance Fund, a public corporation which writes insurance on all types of publicly owned properties at a rate set at 50% of private commerical rates. The duty of the land supervisor is to supervise the insurance

on all tax-title properties, entering them when they are taken under tax deed and cancelling them when they are sold.

The land supervisor makes it his duty to check on all cases of illegal timber cutting on county property and to see that all cases of trespass are brought to the attention of the district attorney. Moreover, he checks to make certain that all back taxes are paid whenever timber is logged from privately owned lands. In several cases he has been instrumental in securing to the county the payments of large sums of tax money which might have been lost had the privately owned timber been removed from the tract before the county had had time to determine its value. The supervisor also checks on all cases of removal or demolition of buildings to make sure that the county has no interest in the property as a result of unpaid taxes.

A further duty of the land supervisor is the issuance of permits to local residents to cut dead and down timber on county-owned lands to use for fuel. In 1939–40 some 200 such permits were issued, and they involve some degree of supervision to make sure that the provisions of the permits are complied with. The land supervisor is also a deputy fire warden, authorized by the state conservation commission to issue burning permits to residents of the county wishing to burn brush or trash during seasons when burning is prohibited by law.

Because of his frequent trips throughout the county and because of his knowledge of the lands owned by the county, the land supervisor is a valuable aid to the county agricultural agent in selecting lands for entry under the state forest crop law. Moreover, he also checks on the various activities being undertaken in the county forests (e.g., tree planting, fire-hazard elimination, etc.) and in other ways acts as an important administrative force in the development of the county's forest program. One phase of such work involves the reporting of violators of the county's rural zoning ordinance and his frequent contacts with the isolated areas of the county make him an ideal person to report on such violations, although he is not officially charged with this duty.

Conclusion

In the above discussion we have traced the evolution of a new type of local public official. The office of land supervisor has grown haltingly, without benefit of plan or of law, and from the bottom up. His duties have multiplied, not as the result of any plan or of any carefully thought out policy, but as the result of an imperative pressure to meet immediate needs. Nowhere in the statutes will mention be found of the office of land supervisor nor are the functions or duties of such an official outlined anywhere, even by the county board which employs him.

In spite of the fact that the work of this new type of public official has developed "outside the law," still the pressure which led to that development has been severe enough to lead to similar growth in at least four other Wisconsin counties. The development of the work of a land supervisor has been carried to greater lengths in Lincoln county, however, than in any of the other counties which have such an officer.

This development, it is felt, is of greatest importance in regard to lands which the county cannot sell, or which, under its forestry and rural zoning programs, it does not wish to sell. For there has been a growing realization on the part of the county that some lands should never return to the tax rolls and to private ownership and with this realization has arisen the obvious need for the establishment of administrative machinery and for the formulation of policy for proper management of such lands. The state forest-crop program offers a partial solution for the management of those lands suited to timber production. For the remainder of the county's land holdings, the functions of a land supervisor mark the genesis of a county office which could, and does, serve as a focal point for all the many administrative functions that the county, as a landloard, is being forced to develop. Such an office will not, *per se*, solve the problems of the submarginal and transitional county-owned lands. It will, however, form a framework within which future policy and practice can be developed, and the very nature of its present growth and development would seem to indicate that the office is flexible enough to change as the needs which give rise to it may change.

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A Philosophy of Permanent Conservation

Much has been said about the non-economic aspects of conservation and the attitude of men toward land in foreign countries. Abercrombie in his *Town and Country Planning* (New York: Henry Holt, 1933) says: "The Chinese have advanced much further than any European country in the rural problem, under the title *fengsui*, which literally means the weathering effect upon the landscape of the natural forces of wind and water. The density of their population has forced them to control, in the interests of landscape fitness, the human additions" (p. 21). With this in mind the editors have asked Mr. Ching-Yuen Hsiang, who has been studying land economics in the United States, to elaborate on the Chinese philosophy of *fengsui* for the *Journal of Land & Public Utility Economics*.

GEORGE S. WEHRWEIN

THE living man is earth-born and earth-nourished; the dead is earth-covered and earth-buried. In the beginning, man never lived on the land but lived with the land. In the course of their co-existence, man and nature are wrought together, dead or alive. While alive, man seeks standing room, location of shelter, sites of exchange, and avenues of transportation and communication by land, air, and sea. In addition, if he is to survive, he must cope with the forces of nature; he must wring a living from the land or the sea. It is obvious that man is never unrelated to the physical conditions among which he lives. The hand of nature continues to carve into the life of man, just as the need, the art, and the tools of man continue to reshape nature.

In the course of their living together, man finds life and comfort in the bosom of nature. Standing room is carpeted; sitting room cushioned. Location of shelter is not infrequently chosen for the amenity of its surroundings. A person prefers one house to another, simply because in the one, as he looks around, he does not feel that choking atmosphere which he feels in the other.

No eulogy, however fluent and rhetorical, will exhaust the descriptions of life and comfort which nature has afforded man. No apology on any ground of material felicity will justify man's ruthless exploitation of nature. Where acres are decarpeted and mountains uncushioned, nature loses its dignity, weakens its resistance to the elements, and finally dies of wound and exposure. When nature ceases to live with man, man cannot live on the land. Let the earth speak, its voice would out-Marx any Marxian apostle. Denudation of nature's mountains lays bare its ribs. Pollution of nature's waterways poisons its veins. Plowing up nature's grasses skins it alive. The Yellow River rolls with anger and roars with pain. The Yangtze River gushes with sandy blood. By relentless extraction of mines and ruthless exploitation of petroleum, the bones of nature are torn and her heart bled. When nature revolts, man dies. Mutual appreciation, adjustment, and conservation provide a way of life of nature with man and man with nature.

This mutuality functions in three ways. The appreciation is temperamental; the adjustment is processal; and the conservation is intemporal. The three operate in a continuum—a way of life of man with nature and nature with man.

Appreciation depends upon values and attitudes. Values and attitudes are formed by habits, transmitted by experience, conditioned by environment, and cultivated by a process of progressive education. Adjustment results from the wants and needs in view and the ways and means on hand. In the process of adjustment, the wants and needs meet and miss the ways and means. Gradually, through organized life and through man's conditioning his environment and being conditioned by it, man devises ways and means to cope with his wants and needs. Whenever the end in view and the means on hand meet and fit each other, a pattern of adjustment is arrived at and a way of life is attained. Appreciation of this way of life would then impute values and attitudes to it. The pattern of adjustment may be called an institution

and the way of life, an institutional life. It is to be preserved and cherished by education; it is to be modified by new wants and needs; and it is to be controlled by new ways and means. This being the case, conservation of this way of life is intemporal and it runs in a continuum.

Nature does not exist for sheer exploitation by man. It exists for appreciation by man. Appreciation of nature has always been a part of Chinese life. If appreciation of nature is shorn from Chinese classical poetry, the remaining portion would be bashfully meager. If appreciation of nature is taken away from Chinese painting, the remaining portion would be miserably poor. A part of China's written language originates in imitation of nature, and its art of calligraphy runs parallel with its art of transposing nature to paper. If the mutual pulsation between the Chinese peasant and his land ceases, there would be no permanent agriculture in China. Even a badly weeded farm in China gives a bad reputation to the owner. Why should not fingers be pointed at and faces turned against a badly eroded farm in America? The Chinese peasant's incentive to work is sometimes deeper than the fear of hunger. Land in China is an integral part of the peasant's personality, and the peasant is also an integral part of the personality of the land. Appreciation of nature, like appreciation of music, depends on cultivated values and attitudes. Both are transmitted through experience. With nature, appreciation begins with its animation and culminates in its personification and harmonization with man. To make the artificial resemble the natural as much as possible is the first and last principle of Chinese landscape gardening. Looking at leaking stains on a ceiling often stretches a Chinese child's imagination to the grandeur of nature. He sees clouds in their varying formations—mountains, rivers, and animals. The best marble in China is treasured for its close resemblance to natural landscapes. So, to the rich and the poor, nature affords equal opportunity for appreciation.

Animation leads to personification. When personified, nature is alive. The mountains lord it over the hills; the hill bows in respect to the lofty summit. When personified, nature has both personality and potentiality. Rain murmurs, wind howls, mountains gallop, trees bow, and flowers coquette with man.

When personified, nature and man make harmonious adjustments. The process of mutual harmonization and adjustment is one of give-and-take with due consideration to the other's wants and needs. Though the two processes of adjustment have their organic analogy, they are, nevertheless, sociological and economic in nature. The Chinese practice of geomancy exemplifies the point of view advanced here. Veneration of the dead in China is known as ancestor worship abroad. In fact, it reveals the imputed values and attitudes of a life process, that is, "the transmission of social functions from one generation to the other—whereby social continuity is secured in spite of biological discontinuity." This is also economically true, because the social functions of the newcomers, resulting from the limited material environment of the community, cannot be acquired without displacing the old. In many cases, "the introduction of a young man to the land means the displacement of an old man in the working team." When the dead is about to be buried, great care will be taken in regard to the location and situs of his resting place. The proper potentialities of nature known as *fengsui*, meaning wind and water, are studied by a professional geomancer. Great care will be taken not to disturb the balanced adjustment and harmonious course of nature, lest, it is traditionally believed, calamity will descend upon the later generations. The location will be so chosen and the site so determined as to fit into and be in harmony with the highest potentialities of nature. In order not to kill nature, its incoming vertebrae (mountains) and outgoing arteries (rivers) must not be dismembered. In order to be in harmony with nature, its course must not be blocked, deliberately modified, or artificially created. Numerous rules forbid burying of the dead in places which are incongruous with nature. For example, broken mountain and dead water mean discontinuity of posterity. High water and low mountain contradict nature's course and, therefore, man's course, too. The situation implies feminine domination. The best way to be with nature is as nature is with itself.

To choose a burying place is to choose the location of a residence for the deceased. In fact, the residence of the living is called *yang*-residence, and that of the dead *yin*-residence. *Yang* designates this-world, positive, masculine, bright, mountain, heaven,

etc., while *yin* designates the other-world, negative, feminine, dark, river, earth, etc. The dialectic interplay of each set of opposites often strikes a golden mean, which is the product, or the harmony. And when each of the entities which constitute a set of the opposites goes to the extreme, its nature will inevitably reverse itself. Accordingly, the product of masculine-feminine is man, and the product of heaven-earth embraces all living beings. Hence, human life is a constituent part of the life of nature, the harmonious functioning of which is the beginning and the end of a view of the universe. The philosophical part of the dialectic interplay is comparable to Hegelian mysticism. Only, in the Chinese case, the product is a harmonious mean instead of a synthetic extreme. This harmonious mean runs in a continuum, in which the dead are temporally and spatially not different from the living.

This being the case, the location of the *yin*-residence for the dead is as important as that for the living. In fact, the geomancer locates the *yin-yang* residences with equal geometric precision and due consideration of the potentialities of nature. An ideal location is usually described in naturalistic terms. A site which faces the water and is against the mountain constitutes an ideal seat. Nature's potentialities (vapor) would canopy it. It is a kingly site. The reverse, therefore, would mean disaster. By the same token, a threatening structure of giddy height obstructs the living in the same way in which a mountain obstructs the dead. When the institution of *fengsui* was in vogue, such an unnatural arrangement used to constitute cause for a lawsuit and the case was not infrequently won in the court.

In spite of its mystical origins, the institution of *fengsui* has served a social function. Its values and attitudes have kept the Chinese way of life in harmony with nature, and have preserved many a work of nature. Like other institutions *fengsui* bears a vestigial mark of a usage that is gone. Nevertheless, the values and attitudes persist.

Man and nature are usufructuaries one of the other. Man and nature are not exploiters one of the other. Their proper functioning is a process of give-and-take. Usurpation on either part brings disaster. To control nature is to modify its development and to condition its environment in accordance with its natural course and potentialities. To control man is to modify his development and to condition his environment in accordance with his habits and potentialities. Conservation is, therefore, a mutual responsibility. To conserve is to usufruct. Nature conserves man and man conserves nature. In the beginning and the end, nature and man are a continuum.

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E. W. Morehouse, *Editor*

The Elasticity of the Residential Demand for Electricity

THE public has for some time taken a direct interest in residential rates for electricity. Such incidents as the "Insull affair" and the program of the Tennessee Valley Authority have done much to fan the flame of public interest and keep the issue of rate reductions in the heat of controversy. The utility companies, who have been subjected to a beating on the anvil of public opinion, have not been asleep to the fact that something must be done in the way of establishing so-called reasonable rates.

Since its beginning the industry has shown, with the exception of a few years, a continuous, annual decrease in the average residential rate for electricity. At first such reductions were made possible in part by technological improvements within the industry, but as time progressed the pace of improvements slackened and the companies, faced with high fixed costs, felt that further rate reductions would prove disastrous.

The decisions in many of the rate cases as handed down from the higher courts give the impression that the judges tend to follow the above reasoning of the companies which stresses the impossibility of further reductions in cost as a source of further reductions in rates. This analysis of the problem, however, either completely ignores the possibility of a change in the demand or assumes the demand to be highly inelastic.

> "It is common practice [for the courts] to take a given year's sales of a company in question and multiply that sum by a proposed lower rate in order to estimate the probable revenues under the rate."[1]

This fallacy has made the courts reluctant to force lower rates upon the companies who themselves have resisted rate reductions on the same grounds. In reality, however, it is possible that some rate reductions might have increased rather than decreased the net returns as was found to be the case in the rate reductions in the District of Columbia[2] and in TVA territory.[3] It is desirable then that one know something about the elasticity of the demand for residential service before he concludes as to whether or not the rates are reasonable from the standpoint of giving the maximum service to the customers and still allowing the companies a reasonable return.

The market for electricity differs from the market for most commodities in that one cannot distinguish between the quantity offered and the quantity taken. It is only offered when it is used by turning on the switch. The quantity supplied and the quantity demanded at any time are identical except in the event of lows in production and delivery or failure at the source. Only in the sense of potential stock, that is, the amount of productive capacity, can one speak of the quantity offered as being separate from the quantity demanded.

This identity of the supply of and demand for electricity makes possible a different approach to the solution of the problem of elasticity than is commonly used. In the case of farm products, for example, the supply is to some extent dependent upon the uncontrollable factor, weather, which throughout the years alters the amount of production which in turn is reflected in changes in the price and the amount demanded and in this way presents an opportunity for the study of elasticity. Although it cannot alter its production in similar fashion, the electric industry, by its very nature, operates in many separate, individual markets, thus presenting a variety of independent prices and quantities at any given time. This condition makes it possible to determine elasticity of demand as of a given point in time; whereas in the case of the important staple farm products, which are controlled by a single market and price, elasticity must be determined as over a given period, thus involving a time variable.

Four different samples of residential demand, measured in terms of average annual

[1] C. Woody Thompson and W. R. Smith, *Public Utility Economics* (New York: McGraw-Hill, 1941), c. 13.

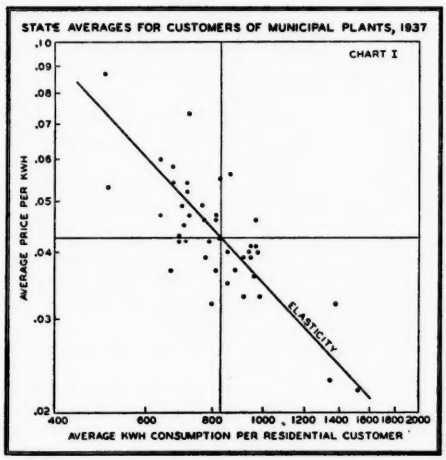
[2] I. Bussing, *Public Utility Regulation and the So-Called Sliding Scale* (New York: Columbia University Press, 1936), c's 8 and 9.

[3] F. A. Newton, "Commonwealth and Southern Objective Rate Plan," 11 *Journal of Land & Public Utility Economics* 120 (May, 1935).

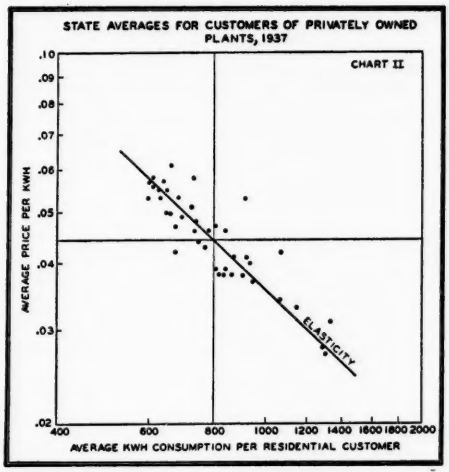
consumption per customer, are used in this study in an attempt to obtain an accurate measure of elasticity. The samples used show for the 48 states a comparison of (1) the demand of customers of municipal power plants and (2) the demand of customers of private companies. The third sample represents the demand of cities of over 50,000 population in two different sections of the country; and the fourth shows the demand of 95 companies scattered throughout the nation. Elasticity is also determined for the total residential demand for the years 1913 to 1940 by the use of link-relatives. In all cases the demand and rates are expressed in terms of the average, annual, kilowatt-hour consumption per residential customer and the average price per kilowatt-hour.

The direct least-squares method used in determining elasticity is that suggested by Henry Schultz in *Statistical Laws of Supply and Demand*. In judging the results it is important to keep in mind that the method used assumes constant elasticity throughout the range of variability studied and that the data are in terms of averages which do not represent any *particular* customers.

Chart I shows the elasticity of the residential demand for electricity as represented by the state averages for the customers of municipal plants for the year 1937 to be 0.96.[4] The coefficient of correlation,[5] i.e., the precision with which the line of elasticity represents the data, is approximately 0.80 and can be considered reliable, for the possibilities of obtaining such a correlation by chance are less than one in a hundred.[6]



In the case of the state averages for customers of private companies, as shown on Chart II, the elasticity is approximately 1.08 with a reliable correlation of 0.88.



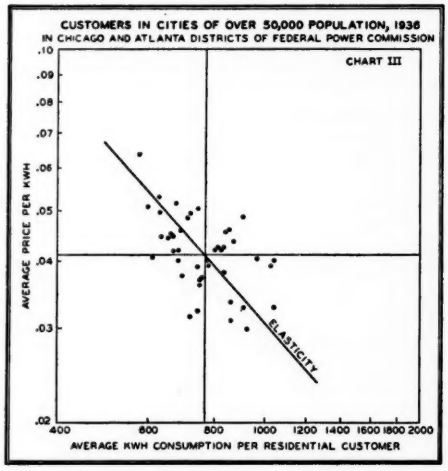
A study made of the available figures for the year 1936 of all cities having 50,000 or more population in the Chicago and Atlanta districts of the Federal Power Commission shows the elasticity of demand to be equal to approximately 0.91 with a reliable correlation of 0.58. This is illustrated by Chart III.

Chart IV presents the elasticity of residential demand for 1939 of 95 companies located throughout the United States and including approximately ½ of the total industry. The ratio is found to be 1.1 and the reliable correlation is 0.82. Although the elasticity of the total residential demand for electricity from the years 1913 to 1940, as

[4] A coefficient of elasticity equal to 1 is spoken of as unitary elasticity. This means that there is a one to one ratio between a percentage change in demand and a percentage change in price, with the result that a change in price will be offset by a corresponding change in sales so as to leave the total receipts unchanged. A coefficient of 0.96, as above, indicates a slightly inelastic demand.

[5] "Correlation" as here used refers to the Pearsonian coefficient of correlation (r) as calculated from the ogarithms of the data or the logarithms of the link-relatives in the case of time series.

[6] The term "reliable" as it refers to correlation throughout this study designates that the figure for F as calculated by Fisher's formula, $F=\frac{r^2}{1-r^2}(N-2)$, is found to be greater than the corresponding least highly significant figure in Fisher's table of F.

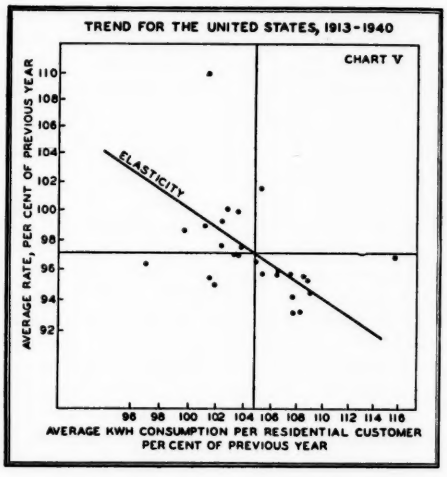


measured in terms of the percentage of the previous year, is shown to be 1.54 by the trend line on Chart V, the coefficient of correlation is so low and unreliable and the extreme cases weigh so heavily in determining the slope of the line, that one can only say that this particular sample is not conclusive.

On the basis of these samples one is led to the conclusion that the residential demand for electricity tends to have an elasticity of unity. That is, the responsiveness of consumers to a lowering of residential rates tends to be such that the quantity of electricity taken increases to the extent that there is no decline in total receipts.

It is recognized that other factors, such as sales of electrical applicances and sales promotion, must be taken into consideration as determinants of actual demand; nevertheless, such factors would probably not invalidate the estimation of elasticity. Random variables tend to destroy correlation rather than to cause it.[7]

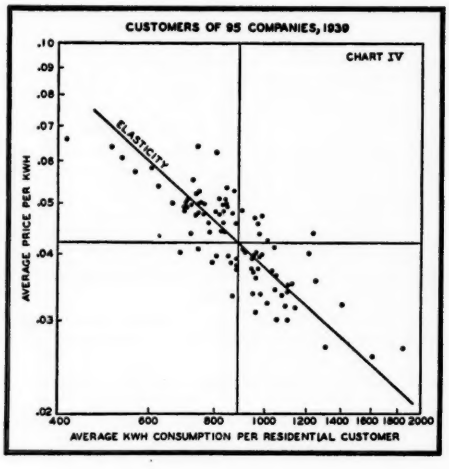
In the case of determining elasticity in the demand for farm products, many variables are recognized; one of these is time, which, as mentioned before, has been minimized in this study. These random variables in the farm market tend to ruin the correlation between price and quantity; yet acceptable estimates of the elasticity of the market for



farm products have been made. One may conclude then that unitary elasticity as shown in this study at least estimates the nature of residential demand for electricity even though factors other than price are influencing the demand at the same time.

The writer's purpose has not been to measure the relative strength of the price variable in determining the level of demand, but merely to describe the degree of elasticity as it exists. The problems of weighing variables and determining causal relationship under the conditions of objective rate schedules confront one with the "chicken-and-egg" dilemma: Is increased consumption the result of lower rates or are the rates lower as the result of increased consumption?

If, however, one is to estimate the in-



[7] In this study the use of averages helps to smooth out the effects upon the measurement of elasticity of any extremes, which with a large number of cases tend to cancel out themselves.

fluence of such factors as sales promotion and the sale of electrical applicances upon residential demand, it should be recognized that these like rate reductions are of limited scope or any company could solve its problem of demand by merely increasing these activities. As a possible solution to the determination of the causal relation, it might be suggested that price sets a zone within which such factors as sales promotion and sales of appliances determine the exact level of demand at any given time.

Knowledge of the fact that where electrical rates are lower the consumption is not only greater but proportionately greater than it is in the higher rate areas, should be encouraging, both to the electrical industry and society as a whole. Because the industry is one of high fixed costs it is especially interested in increasing production so as to maximize its net returns. Knowledge that the elasticity of demand approximates unity should, within limits, encourage expansion. There can be little doubt that from a social point of view the increased availability of electrical energy for residential customers as a result of reductions in rates is a thing to be welcomed.

From the standpoint of an individual firm, however, knowledge of the existence of demand with an elasticity of unity is not enough. Before a reduction of residential rates is to be undertaken, the firm wishes to know the relationship of the increased cost of production to the increased revenue produced, for it is assumed that the firm's interest lies not in producing more electricity but rather in maximizing its net return. Under conditions of decreasing costs, common to industries of high fixed costs, the capacity of a particular plant plays an important role in determining its price policy. The feasibility of a reduction in rates and hence an increase in the production of any particular firm is dependent upon the cost characteristics of the plant in relation to the characteristics of the consumers' demand.

Such a factor as the time of day at which the increased production would be needed is of utmost importance in judging the capacity of the plant in relation to the increased quantity used and hence to the feasibility of a reduction in rates. Other characteristics such as the steadiness and dependability, i.e., the load factor, of the increased consumption are likewise of importance to the individual producer in determining his rate policy.[8]

Accepting the conclusion that the residential demand for electricity tends to have an elasticity of unity, the writer is of the opinion that the responsibility rests upon the individual company to examine the characteristics of its particular demand and discover how this demand differs, if at all, from the demand of the total industry and the territory within which the company is located, and hence review its rate policy.

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[8] An increased demand may result from increased use by old customers or from new customers. A presentation of some of the problems relating to the demand from new or marginal customers is found in W. J. Crowley, "The Prospects of Continued Electric Rate Reductions," 15 *Journal of Land & Public Utility Economics* 464–72 (November, 1939).

The Handset Telephone and Monopoly Price Policy

TECHNICAL changes and economic problems generally go hand in hand. In the telephone industry the introduction of a technically satisfactory handset telephone preceded the satisfactory solution of the pricing of such equipment. Although this type of subscriber instrument was first introduced in 1927 by the major companies, its pricing has continually revealed evidence of geographical discrimination which neither regulation nor voluntary action has yet completely removed.

In an earlier article in the *Journal*[1] a summary of monthly charges revealed considerable differences in total revenues per subscriber then being collected in the various states. A survey made at the end of 1939 and of 1940 indicates that the handset charge is disappearing but that pricing differentials persist.[2] Out of 48 states, the District of Columbia, and Hawaii a charge by the major companies was still in effect in 17 jurisdictions on January 1, 1940. During 1940, six of these

[1] For an extended discussion of the handset problem up to 1937, see Floyd R. Simpson, "The Handset Telephone: A Problem in Public Utility Regulation," 13 *Journal of Land & Public Utility Economics* 331 (November, 1937).

[2] Data supplied by correspondence with the various commissions.

dropped the charge, and three commissions have ordered its elimination during 1941.[3]

In the remaining jurisdictions the following monthly charges are made by the major companies:

State	Charge	Duration of Charge (Months)	Total Payments Made by Subscribers
Arkansas*.....	$.15	24	$3.60
Kansas.....	.15	24	3.60
Nevada*.....	.15	18	2.70
Oklahoma.....	.15	18	2.70
Oregon.....	.10	12	1.20
South Dakota..	.10	18	1.80
Texas†.....	.15	12	1.80
Washington....	.15	18	2.70

* At the time of writing no reply had been received from these commissions; charges shown are those in effect Jan. 1, 1941.
† No regulation of telephones in this state. Charges are not made in the larger Texas cities, such as Amarillo, Dallas, Ft. Worth, Houston, San Antonio, and El Paso.

The above tabulation reveals a pricing policy partially based on charging what the commission will allow or what the traffic will bear. For example, in the area served by the Southwestern Bell Telephone Company are found the states of Arkansas, Kansas, Missouri, Oklahoma, and Texas. In each of these states except Missouri a handset charge is still made, varying from a total payment of $1.80 in Texas to $3.60 in Kansas. In the neighboring states of Colorado, New Mexico, Nebraska, Mississippi, Tennessee, and Kentucky, where operating conditions must be somewhat similar, all charges have been eliminated. South Dakota is bounded on all sides by states where the monthly charges have been eliminated. Four of these adjacent states are served by the same large company or its subsidiary. Oregon and Washington are served by a company operating in both states, but total charges paid for handset service are divergent by $1.50, whereas at the same time the same company makes no handset charge in California. In the East St. Louis (Illinois) area a charge of $.15 a month for 24 months is made, although no charge is made across the river in St. Louis (Missouri) or in the remainder of the state of Illinois by the same system.

Charges Made by Non-Bell Companies

As contrasted with the larger companies, a majority of small companies make a charge for the handset in all states.[4] Commissions have found that many of these independents do not have current cash or have not made sufficient provision for depreciation and obsolescence to supply the new equipment without additional revenue. The original cost of the instruments (without dials) to these companies has been about $2.00 more than to the Bell companies. Charges allowed vary somewhat with company needs and range from $.08 per month, unlimited as to length of collection period, as in Wisconsin,[5] to $.25 per month for 36 months, as in Indiana and South Dakota. The most common charge made by these small operators is $.15 per month. Where the charge is unlimited as to duration, obviously it is being used eventually to increase gross revenues over and above additional costs of the handset.

Change of Instrument Fee

The change of instrument fee,[6] made by both the major and small companies in all areas, also varies from state to state and is apparently used to some extent to help sustain gross revenues when the monthly charge is eliminated, as well as to act as a deterrent and to cover marginal costs of making the physical change of instrument.[7] This charge varies from $1.00 to $2.00; the most typical charge is $1.50. Montana allows no charge for changing a deskset to a handset.

Spokesmen for the telephone industry endeavoring to justify the charges for handsets still advance such reasons as: (1) higher original cost; (2) more operating attention and maintenance needed; (3) outmoding of older but equally serviceable equipment, attributable merely to a change in the desires of subscribers, and thereby causing excessive

[3] Wisconsin dropped its $.08 per month (unlimited as to duration) charge as of January 1, 1941; Florida ordered its $.15 per month (payable for 24 months) charge eliminated March 1, 1941; Louisiana has ordered its $.15 per month (payable for 12 months) charge eliminated on May 1, 1941.

[4] Mississippi reports that no monthly charges are being made by any company.

[5] Wisconsin gives its smaller companies the alternative of charging $.25 per month for a period of 24 months only.

[6] A flat charge made to subscribers who ask to have their older wall or desk (candlestick) telephones changed to a handset.

[7] The recent Florida order (November, 1940) provided that when the monthly charge was dropped (March, 1941), the change of instrument fee increases from $1.00 to $1.50. In Indiana, companies with an annual gross income of less than $10,000 charge $1.00; above $10,000, $1.25.

retirements. The charge acts as a deterrent as well as to cover any costs. The justification for these and other arguments was presented in the earlier article, but even granting them to be fully substantiated, it still would not explain completely the discriminatory pricing which exists.

Conclusions

A survey of past and present policy in relation to the introduction and pricing of the handset instrument lends some factual support to the theory that, if the opportunity is present, monopolists tend to act in a manner not contrary to that which economists have long maintained.

The handset experience has also shed some light on another aspect of regulation—namely, what is technically adequate service at any moment of time. Reproduction cost of the *service* as the criterion for the rate-base is now being suggested by some utility specialists as a means of overcoming some of the administrative problems of reproduction cost of the *plant* and as being more economically justifiable.[8] It also puts more emphasis on service improvements in regulation.

The handset experience, however, indicates that another administrative-legal problem would arise if such a rate-base were to be established. When would technical improvements reach a degree of development high enough to be declared sufficiently standardized to be used in rate-base computation? Numerous telephone officials and commissioners even today believe the handset is not yet essential as a basis for rendering adequate and satisfactory service and that it still should be treated as an "extra" when demanded by consumers. In the light of such experience with the handset the assumption is not unwarranted that the introduction of large investment-retiring improvements would be resisted when some commissions decided to use them in calculating a new rate-base. This would be especially true if the investment needed to reproduce the *service* under the new methods involved the establishment of a considerably lower rate-base. Some of the controversy now revolving around the cost of reproducing the plant would shift to administrative-legal determination of when and what kind of a modern plant should be considered standard for rendering service.

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[8] See E. P. Schmidt, *Public Utility Economics* (St. Louis: John S. Swift Co., Inc., 1940), c. VII.

Ouster after Expiration of Franchise:
The Geneseo Case Again

SINCE the enactment in 1913 of the Illinois Public Utilities Act, which created a state commission to regulate public utilities, various court and commission opinions have interpreted its provisions. But until a short time ago, there has been doubt as to the effect of that law on the power of municipal corporations to control the use of their streets by public service companies. In a recent decision, known as the second Geneseo case, the Supreme Court of Illinois held that a municipal corporation has the power, after expiration of a franchise, to order the removal of public utility facilities from the city streets. We shall discuss that opinion and some of its implications.[1]

A city granted a franchise for a period of years to an electric utility, permitting the company to place its poles, facilities, etc., on and under city streets during that time. The utility accepted the franchise. Shortly before the franchise expired the municipality built its own electric plant and facilities which were adequate to serve all customers in the locality. Just after the franchise expired, the city gave notice that it would not renew the franchise and ordered the company to remove its facilities from the streets; the utility refused to vacate the streets and continued to serve a minority of the population in the locality and several persons outside the city. Then the municipality filed a suit in the cir-

[1] *City of Geneseo v. Ill. Northern Util. Co.* and *Village of Heyworth v. Cent. Ill. etc.*, Docket Nos. 25930, 25933, opinion April 10, 1941. Two cases were consolidated because the issues were the same. A petition for rehearing will no doubt be filed soon. Although the question is usually one of statutory interpretation, most courts have held that local authorities retain control of the streets and that the state commission has power over the rates, service, securities, etc., of the public utility. The cases are collected in 112 A.L.R. 628.

cuit court for a mandatory injunction ordering the company to vacate the streets, remove its poles, etc. The Supreme Court of Illinois held, in the first Geneseo case, decided in 1936, that the power to determine whether the company shall continue or cease doing business in the city rests with the Illinois Commerce Commission.[2]

Thereafter the city filed its complaint with the commission and prayed for the same relief that it had requested of the courts. After hearing the matter, the commission held that, since the company served a substantial portion of the city's population, it would not be reasonable to require it to cease operations and, therefore, denied the city's petition.[3] The municipality appealed; on this appeal, known as the second Geneseo case, the Supreme Court of Illinois recently set aside the order of the commission. In its opinion, dated April 10, 1941, the court expressly overruled its former decision in the first Geneseo case and said that the primary object of the Public Utilities Act was to grant control of rates, activities, structures, and facilities to the commission and that in order to accomplish this purpose it was unnecessary to deprive the local authorities of their control of the streets or their power to grant or refuse franchises for that purpose. The court added that, if the Public Utilities Act transferred the control of the streets from the city to the commission, it would make existing franchises permanent except perhaps by reason of the exercise of grace by the commission. By way of additional argument to support its conclusion, the court stated that the city had established its own electric plant and was prepared to furnish adequate service to all its inhabitants.

What is the next step to be taken by the city if the company refuses to remove its facilities? It can either file a court action to obtain a mandatory injunction similar to what it attempted in the first Geneseo case or it might seek an order from the commission. The company may attempt to have the Public Utilities Act amended so as to provide that municipal power to order removal of facilities from streets be not exercised after expiration of a franchise unless there is a finding by the commission that public convenience and necessity require such action.

Another important issue in Illinois has been whether a public utility or carrier can use the city streets without the consent of the city *provided* it first obtained a certificate of convenience and necessity from the commission. Prior to the second Geneseo case there was some doubt because of the Chicago Motor Coach case, 337 Ill. 200 (1929). There a local bus company obtained a certificate of public convenience and necessity from the Illinois Commerce Commission authorizing it to operate on streets in the city of Chicago. No franchise was obtained from the city; instead the city enacted an ordinance prohibiting, under penalty, the operation without a franchise. The carrier started a court action to restrain enforcement of the ordinance by the city. The Supreme Court of Illinois held that the Public Utilities Act withdrew control of the streets from the city and transferred it to the commission; therefore, a franchise was unnecessary. In the second Geneseo case, the Supreme Court expressly overruled the Chicago Motor Coach case. Since the carrier is at present operating in Chicago it must, in order to make its operations legal, obtain a franchise. The city is at present attempting to merge all local transportation in Chicago; will it deny a franchise except to a new company which is to be organized to own and operate unified transportation in Chicago? Suppose the city follows this line of action and the company refuses to sell but seeks an order of the commission *requiring it to continue service* on the ground that discontinuance or abandonment of service would deprive certain persons of a convenient means of transportation?

The necessity of a municipal franchise will no doubt pave the way for more municipal gas, electric, and water plants in Illinois. The fact that a city has power to withhold the franchise will also enable it to bargain with the company. On the other hand, where the city will not compete with a private utility, whatever terms the city demands as the price of a franchise will inevitably be reflected in rates which the utility will seek from the Illinois Commerce Commission.

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[2] *City of Geneseo v. Ill. Northern Util. Co.*, 363 Ill. 89. See comments E. L. Cohn, "The Geneseo Case and Public Utility Regulation in Illinois," 12 *Journal of Land & Public Utility Economics* 433 (November, 1936) and 31 *Illinois Law Review* 122 (1936).

[3] The issues submitted to the commission and its order are discussed in D. L. Marlett, "A Regulatory Dilemma, etc.," 14 *Journal of Land & Public Utility Economics* 246 (August, 1938) and A. L. Stein, "Ouster after Expiration of Franchise," 15 *Ibid.* 367 (August, 1939).

Public Utility Financing in the First Quarter of 1941

PUBLIC utility security offerings in the first quarter of 1941 totaled $420 millions. This is an unusually heavy volume for the first quarter of the year. Financing in the first quarter is usually relatively light as compared with the balance of the year. Not since 1936 have the offerings during the first quarter been so large. Total offerings in the first quarter of 1940 were $263 millions, and those in the last quarter of 1940 were $606 millions.

Long-term bonds, excluding serial issues, accounted for $361 millions, or 86% of the total. Preferred stock offerings accounted for $52 millions, or 13% of the total. The remaining 1% are accounted for by several serial issues, totaling $5 millions, and a lone issue of common stock amounting to about $2 millions.

Although there are factors which, in the light of past experience, seem to point toward higher costs of money, no evidence of such a trend is discernible at the present time. Standard indices of bond yields for the first quarter of 1941 are at the lowest level in recent years. Exact data on the purpose of new security issues is difficult to obtain, but obviously the great majority of issues reported in this department since 1936 have been for refunding purposes. Many utilities have been able to reduce substantially their cost of capital. A relatively insignificant portion of the issues have been put out to secure new capital for additions to plant. The record low costs of money have not acted to stimulate a large demand for new capital funds.

Long-Term Debt Financing. Tables I and II, which show the details of publicly and privately sold long-term debt issues respectively, reveal the fact that private offerings exceeded public offerings by about $33 millions. The weighted average yield at offering prices on the 12 issues offered publicly was 2.86%, which is slightly higher than the comparable figure for the fourth quarter of 1940, but is considerably lower than that for any of the other quarters in 1940.

Underwriters' commissions were some-

TABLE I. SUMMARY AND ANALYSIS OF PUBLIC UTILITY LONG-TERM DEBT ISSUES, OFFERED PUBLICLY, FIRST QUARTER, 1941

Company and Issue (A)	Coupon Rate (B)	Principal Amount (C)	Maturity Date (D)	Month of Offering (E)	Offering Price (F)	Offering Yield (G)	Underwriters' Commissions (H)	Proceeds to Company (I)	Estimated Incidental Expenses (J)	Net Proceeds (K)	Cost to Company (L)
	%				%	%	%	%	%	%	%
Consol. Gas Elec. Light & Pr. Co. of Baltimore											
First and Ref. Mtge. Sink. Fund.	2¾	$ 12,000,000	1976	January	103.50	2.60	1.70	101.80	.47	101.33	2.69
Illinois Bell Telephone Co.											
First Mortgage	2¾	46,250,000	1981	January	103.50	2.61	1.50	102.00	.40*	101.60	2.67
Luzerne County Gas & Elec. Corp.											
First Mortgage	3¼	7,500,000	1966	January	104.75	2.97	2.00	102.75	.87	101.88	3.16
Montana-Dakota Utilities Co.											
First Mortgage	3½	7,500,000	1961	January	103.50	3.26	2.00	101.50	.76*	100.74	3.45
Savannah Gas Co.											
First Mortgage	3¾	1,000,000	1966	January	104.00	3.51	2.00	102.00	1.63*	100.37	3.73
Southern Counties Gas Co. of Calif.											
First Mortgage	3	11,500,000	1971	January	101.00	2.95	2.00	99.00	.47	98.53	3.08
Southern Gas Co., Longview, Texas											
First Mortgage	5	300,000	1955	February	100.00	5.00	†	†	†	†	†
Wisconsin Public Service Corp.											
First Mortgage	3¼	26,500,000	1971	February	106.00	2.95	2.00	104.00	.63*	103.37	3.08
Ohio Power Co.											
First Mortgage	3	15,000,000	1971	March	102.25	2.89	1.75	100.50	.59*	99.91	3.00
Pacific Gas & Electric Co.											
First and Refunding Mortgage	3	20,000,000	1970	March	101.75	2.91	1.75	100.00	.87	99.13	3.05
Public Service Co. of Oklahoma											
First Mortgage	3¼	16,000,000	1971	March	103.50	3.07	2.00	101.50	.45*	101.05	3.20
Texas Southwestern Gas Co.											
First Mortgage Sinking Fund	4¾	850,000	1956	March	100.00	4.75	3.00	97.00	3.40	93.60	5.38
Total or Weighted Average		$164,400,000			103.44	2.86	—	—	—	—	—
Total or Weighted Average (Excluding issues for which commissions and incidental expenses are not available)		164,100,000			103.44	2.86	1.79	101.65	.59	101.06	2.97

* Pro rata share of expenses.
† Not available.

TABLE II. SUMMARY AND ANALYSIS of PUBLIC UTILITY LONG-TERM DEBT ISSUES OFFERED PRIVATELY, FIRST QUARTER, 1941

Company and Issue (A)	Coupon Rate (B)	Principal Amount (C)	Maturity Date (D)	Month of Offering (E)	Offering Price (F)	Offering Yield (G)
	%				%	%
Bell Tel. Co. of Pa.						
First and Ref.	2¾	$ 20,000,000	1976	January	100.00	2.75
Central N. Y. Power Corp.						
General Mortgage	3½	5,000,000	1965	January	101.00	3.44
Ill. Bell Tel. Co.						
First Mtge., Series A	2¾	3,750,000	1981	January	102.00	2.67
Keystone Tel. Co. of Phila.						
First Mtge., Series A	3½	8,000,000	1965	January	*	*
Phila. Suburban Wt. Co.						
First Mortgage	3¼	15,900,000	1971	January	*	*
Texas Water Co.						
Mortgage Bonds	4½	350,000	1965	January	103.50	4.27
United Telephone Co., Inc.						
First Mortgage, S.F.	3½	1,975,000	1965	January	*	*
Alton Water Co.						
First Mortgage	3½	1,100,000	1966	February	*	*
Central Maine Power Co.						
First and Gen. Mtge.	3½	1,250,000	1970	February	108.00	3.08
Central Ohio Lt. & Pr. Co.						
First Mtge., Series D	3½	400,000	1966	February	100.00	3.50
Citizens Water Co. of Washington, Pa.						
First Mortgage	3½	2,000,000	1966	February	*	*
Commonwealth Water Co.						
First Mortgage, Series B	3½	5,010,000	1965	February	*	*
Georgia Power Co.						
First Mortgage	3½	101,271,000	1971	February	103.75	3.30
Lexington Water Co.						
First Mortgage, Series B	3½	2,450,000	1966	February	*	*
La. Ice & Elec. Co., Inc.						
First Mortgage	3½	570,000	1961	February	99.00	3.57
Mississippi Pub. Serv. Co.						
First Mortgage	4	500,000	1956	February	100.00	4.00
St. Joseph Water Co.						
First Mortgage	3½	2,600,000	1966	February	*	*
Texarkana Water Corp.						
First Mortgage	3½	1,100,000	1966	February	*	*
Virginia Elec. & Pr. Co.						
First and Ref. Mortgage, Series C	3 1/8	3,000,000	1971	February	106.50	2.80
Atlanta Gas Light Co.						
Gen. Mortgage	3½	2,200,000	1961	March	*	*
Birmingham Gas Co.						
First Mortgage	3 7/8	5,850,000	1971	March	105.02	3.60
Central Elec. & Tel. Co.						
First Mtge. and Collateral Trust, B.	3¾	5,000,000	1966	March	105.00	3.45
Glen Rock El. Lt. & Pr. Co.						
First Mortgage	3½	325,000	1966	March	100.00	3.50
Middle States Tel. Co. of Ill.						
First Mortgage	3½	1,100,000	1966	March	103.40	3.29
Rio Grande Valley Gas Co.						
First Mortgage, Series A	4	2,900,000	1961	March	*	*
W. Va. Water Serv. Co.						
First Mortgage	3¼	500,000	1966	March	104.38	2.99
Westmoreland Water Co.						
First Mtge., Series A	3½	2,775,000	1966	March	*	*
Total of all issues		$196,876,000			—	—
Total or Weighted Average (Excluding issues for which data on offering price are not available)		148,866,000			103.91%	3.23%

* Information not available.

TABLE III. SUMMARY AND ANALYSIS OF PREFERRED STOCK ISSUES OFFERED, FIRST QUARTER, 1941

Company and Issue (A)	Dividend (B)	Principal Amount (C)	Month of Offering (D)	Offering Price (E)	Offering Yield (F)
	%				%
United Tel. Co. (Ind.) Cum. Pfd., $100 par	5	$ 390,300	January	$100.00	5.00
Davenport Water Co. Cum. Pfd., $100 par	5	700,000	February	105.00	4.76
Lake Superior Dist. Pr. Co. Cum. Pfd., $100 par	5	3,500,000	February	102.50	4.88
Wis. Pub. Serv. Corp. Cum. Pfd., $100 par	5	13,200,000	February	105.00	4.76
Ind. Assoc. Tel. Corp. Cum. Pfd., No par	$5.00	1,978,125	March	105.50	4.74
Kansas Elec. Pr. Co. Cum. Pfd., $100 par	5	2,645,000	March	103.00	4.85
Ohio Power Co. Cum. Pfd., $100 par	4½	20,240,000	March	108.00	4.17
Public Serv. Co. of Oklahoma Cum. Pfd., $100 par	5	8,350,000	March	105.00	4.76
San Jose Water Works Cum. Pfd., $25 par	4¾	750,000	March	26.00	4.57
Total or weighted average		$51,753,425			4.54

what lower than in other recent quarters, amounting to less than the usual 2% in 4 of the 12 issues sold through underwriters. The weighted average net cost of money was slightly less than 3% for the second consecutive quarter.

Table II lists privately sold long-term debt issues totaling $196,876,000. The weighted average yield at offering prices on the issues for which such data were available was 3.23%. Twenty-seven issues are tabulated in Table II. The largest issue is the Georgia Power Company's first mortgage 3½s of 1971, amounting to $101,271,000, or a little more than ½ of the volume offered privately in the first quarter of 1941. Two American Telephone and Telegraph Company's subsidiaries, the Illinois Bell Telephone Company and the Bell Telephone Company of Pennsylvania, sold issues privately at low yields, 2.67% and 2.75%, respectively.

Other Utility Financing. Issues with serial maturities offered in the first quarter are listed as follows:

$2,500,000	Montana-Dakota Utilities Co., First mortgage, 2¼% serial bonds, due 1942–1949, price 101.88 to 103.39.
1,500,000	Philadelphia Suburban Water Co., Serial notes, due 1942–1951, interest 0.38% to 2.25%.
1,000,000	Savannah Gas Co., 3½% to 4% serial notes, due 1942–1951, priced to yield 1.20% to 3.95%.
200,000	Middle States Telephone Co. of Illinois, 3% debentures, due serially 1942–1950, priced at par.
$5,200,000	

First quarter offerings of preferred stock are summarized in Table III. Nine issues totaling $51,753,425 were offered during the quarter, the weighted average offering yield being 4.54%. Although the volume is fairly substantial, it is slightly smaller than in the fourth quarter of 1940. The average yield is slightly greater than that in the fourth quarter. In addition to the preferred stock financing during the quarter, the Southern Natural Gas Company offered 231,007 shares of common stock (par value $7.50) to its stockholders at $10.00 per share. Virtually all of this offering was subscribed and in addition, the parent company, the Federal Water Service Company, subscribed for 253,372 shares of the same stock.

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W. H. EVANS

Public Service Commission of Wisconsin

Book Review Department

Urban Land

Graham, John Jr. HOUSING IN SCANDINAVIA. *Chapel Hill: University of North Carolina Press, 1940. pp. 223. $2.50.*

From a journey to the efficient democracies of Scandanavia the author has brought home most interesting insight and information about housing developments. He gives a well rounded picture of ways and means that have been applied to provide an adequate housing standard for the lower income groups in those countries. Farsighted land purchases on the part of the municipalities together with city planning regulations are at the foundation of an elaborate system of subsidies, loans, tax exemption and cooperative housing developments. The policy of municipal land purchases which make possible a control of the real estate market goes back to an old tradition of many hundred years in Copenhagen. In Stockholm, a similar policy was initiated in the eighties of the last century when industrialization began to speed up the growth of the city.

As landowners, and with the powerful instrument of loans and tax exemption for social housing and outright subsidies at hand, the large municipalities in the Scandinavian countries have been able to raise the minimum standard of modern housing. Private building activities followed the trend laid out by municipal and subsidized cooperative housing. It is notable that this competition by no means eliminated possibilities for activity in the private building industry. On the contrary, it seems to have stimulated and, by additional help, extended such building activities.

In the field of rural housing, the program of government aid was combined with farsighted measures of agricultural policy. Farm ownership was favored against the traditional forms of tenant farming.

Although the author is far from picturing these democratic welfare states as utopias, he falls somewhat short in the description of the rather acute housing problems that are specific to the Scandinavian countries. Housing in Sweden, for example, is suffering from extreme overcrowding. Fifty per cent of the urban population are housed in two-room units, generally apartments with a kitchen and one living room only. Only because the Swedish population is used to adjusting to such limited space has it been possible to uphold the continuity in both municipal, cooperative, and private building activities. The emphasis of the book, however, is to elaborate on financial and administrative means which find application to the problems of social housing even in other countries.

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Ebenstein, William. THE LAW OF PUBLIC HOUSING. *Madison: University of Wisconsin Press, 1940. pp. ix, 150. $1.75.*

Broadly speaking, the history of public housing in America divides itself into two distinct phases. The first phase began in 1934 when it was decided that the Housing Division of the Public Works Administration should devote its funds to public low rent housing and slum clearance, and cease its fruitless efforts to provide low rent housing through limited dividend corporations. This decision inevitably led to direct construction by the Division, because of the absence of adequate state laws authorizing local housing bodies to engage in this type of activity.

In the course of building some 51 projects, the Division ran into so many legal obstacles and economic difficulties that, when the notorious Louisville decision was handed down, the program was practically brought to a standstill. The appeal to the Supreme Court was not even argued. As the Department of Justice said, "It was concluded . . . not to submit to the Court for decision cases which as a practical matter had become moot." The suburban housing activities of the Resettlement Administration were similarly blocked by the Bound Brook case.

The 1936 elections followed shortly after these decisions. In this court of last appeal it was decided by an almost unanimous bench that the federal spending power was properly being used to promote the general welfare. There was no alternative but to go forward. Thereafter, public housing entered into its second phase. Legally the way was pointed by the Muller case, in which the New York State Court of Appeals had held that public housing was a public use for which

the state could well invoke its power of eminent domain if necessary. Also, there were now many states with enabling legislation and local authorities prepared and eager to undertake housing projects. The Wagner-Steagall Act, passed in 1937, built the United States Housing Authority on this foundation, to carry out a program of slum clearance and low rent housing based on federal cooperation with state and local governments. This second phase has been marked by the gradual weaving of the concept of public housing into the structure and fabric of our statutory and common law, and by the gradual improvement of the techniques and processes by which that housing is provided.

Mr. Ebenstein divides his treatment of the law of public housing into (1) federal law and (2) state law. In the main, his concern is with public housing as such, although there are occasional digressions into the regulation of private enterprise in housing to round out the picture.

Two general comments may be made on his approach to the subject. Although he has given a very good discussion of his central theme of the concept of housing as a public use, based on a close scrutiny of several leading cases, this has been done at the expense of many of the lesser but nevertheless important legal questions and problems, particularly at the state and local level. *Housing Monograph No. 2* of the National Resources Planning Board, "Legal Problems in the Housing Field," summarizes a number of these questions.

Second, it must be remembered that public housing developed in America quite suddenly, as part of a broad, social movement loosely called the "New Deal." The development of the law of public housing cannot be understood apart from its historical and political setting. As often as not, particular cases found not housing but a social philosophy on trial; the losses and victories of housing were losses and victories of the New Deal, and per contra, the losses and victories of the New Deal were losses and gains to housing. These aspects of the context could well be given more importance than they have been. They are particularly timely at the moment, when public housing has again been brought to a standstill; when, in the intellectual, political, and economic ferment caused by the war, we are groping for answers to social questions of the most critical nature, and no one knows what the outcome will be.

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Land Resources

Bye, Carl Rollinson. DEVELOPMENTS AND ISSUES IN THE THEORY OF RENT. *New York: Columbia University Press, 1940. pp. vi, 133. $1.75.*

This volume presents concisely the developments, considered to be the most significant, that have occurred in rent theory during the last half century. The approach used by the author is to present first a statement of the leading features of the classical theory, next to discuss developments in which rent is still limited to the return from natural resources, and then to trace developments involving the extension of the concept to other distributive shares. After considering these developments and extensions, attention is turned to a discussion of existing issues considered to be typical. Evaluations are made of particularized points of view and issues either directly by the author or through quoting opinions. Finally, the evolutionary trends in rent theory are considered and a rather broad appraisal offered.

The features considered characteristic of the classical concept are: definition of rent as the income from natural resources; measurements of rent from land-use margins; resort to margins explained by diminishing returns; and the conclusion that rent is a result and not a cause of price is reached as the result of accepting a marginal cost theory of value.

Retaining the classical definition of rent, the developments in rent theory are considered to include: emphasis on rent measured as a surplus from either the margins or costs; treatment of rent as monopoly income; recognition of the essential dependence of rent on scarcity; the consideration given rent as unearned income and the treatment of land costs; and the analysis of rent as a price.

Attention is next called to two broad phases of the tendency to extend the rent concept to cover all forms of income similar to that from natural resources. The first involves the treatment of the income from all durable goods as rent. Such developments include: (1) the approach from the commercial point of view; (2) the treatment of rent as the return from durable agents; and (3) the concept of quasi-rent. The second phase involves still broader interpretations of rent and the application of the concept to wages, profits, and consumer satisfactions. In both phases of this extension, the identification of rent as a unique type of income from one of the pro-

ductive factors is rejected, and emphasis is placed on the essential similarity of the character of income, regardless of its source.

The two controversial issues seen as typical of those existing are the land-capital distinction and the rent-price relationship. From the standpoint of fundamental concepts it is believed that a legitimate difference exists between land and capital. However, much of the apparent conflict may be attributable to nomenclature; as a matter of expediency there are advantages in the use of a single term to cover both. No valid difference between the relation of rent and other distributive shares to price is believed to exist. This conclusion is reached either through an opportunity-cost approach or through market prices, where no emphasis is placed on causal relationships.

The expanded and extended meaning of the term "rent" is considered to be a basic evolutionary trend. Confusion resulting from this amplification is attributable to differences in point of view and scope or, more fundamentally, is traceable to conflicting value theories. The desirability of applying a single comprehensive principle to all branches of income is emphasized. Special peculiarities are incidental, with the principal approach based directly on demand and supply relationships.

In several respects this book performs a definite service. It contains valuable comments and appraisals and makes possible a brief review of many of the significant developments in the field of modern rent theory. It contributes to a clarification of the relationships of these developments in emphasizing basic divergences in contrast with those resulting from differences in point of view, scope, and nomenclature.

For a complete coverage of developments during the period considered, it would seem that more recognition might well have been given to the productivity theories, in which the identical principle of marginal imputation is used for each of the distributive shares in explaining demand.

Also, practically all of the developments and issues discussed are treated in terms of equilibrium theory, with little attention given to issues and possible evolutionary trends arising out of approaches dealing with disequilibrium, in which emphasis is placed on bargaining power, frictions, and other institutional aspects of distribution.

From the standpoint of entrepreneurial costs, the case against a unique explanation of the relation of rent to price is quite convincing. However, from the collectivist standpoint, the treatment of rent as a cost that is different from wages and interest appears still to have a certain amount of validity that merits recognition in approaching problems of social policy.

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Smith, T. Lynn. THE SOCIOLOGY OF RURAL LIFE. *New York: Harper and Brothers, 1940. pp. xx, 595. $3.50.*

The student who is interested in rural society in the United States, be his interests general or specific, will find an abundance of material in Smith's *The Sociology of Rural Life.* Although it is another text in a growing series of studies concerned with rural sociology, it comes at a time when the author has had opportunity to use a wealth of resource material that has been developed and analyzed during the recent depression years. Also, this new text is an outgrowth of the experience of one who has lived with and taught those who live in the rural areas of the South, which gives to the discipline a point of view that has not been had up to this time. In a sense one can see a deliberate attempt on the part of the author to answer many problems and questions that other writers have discussed with a lack of appreciation and knowledge of actual conditions in the rural South.

In general, Dr. Smith follows the traditional arrangement of his subject matter. Part I is devoted to an introductory statement which attempts to show the place of the study of sociology of rural life in a scientific world. Part II describes the biosocial characteristics of the rural population. Part III makes a very exhaustive and valuable contribution to an analysis of the organization and structures of rural society. The most novel contribution which the author makes is in setting up Part IV as a separate discussion of the social processes in rural society. In the past, attention has centered around the structural patterns, and Dr. Smith's work is one of the first, if not the first, in rural sociology to center discussion around specific processes.

The reviewer finds it difficult to distinguish between processes, as Professor Smith

describes them, and the chapters on Social Differentiation and Social Stratification found in Part III. The reviewer knows of no reason why these are not processes also and, as such, they should have been left for Part IV. Perhaps the difficulty can be erased if we adopt Dr. Smith's definition of differentiation, for instance. According to his descriptive material, by differentiation he means what other writers in his field refer to as primary, secondary, and special-interest group processes. Although a consideration of this arrangement might be a minor matter, it does not add to the clarity of the subject to see totally different connotations given to concepts that have had other meanings of long standing.

A study of *The Sociology of Rural Life* has done more to give the reviewer a perspective of rural life in the South than any other of the numerous technical and semi-technical publications of recent years.

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Public Utilities

Abrams, Ernest R. POWER IN TRANSITION. *New York: Charles Scribners Sons, 1940. pp. 318. $3.00.*

Power in Transition is in essence a plaintiff's brief in the case of *Electric Utility Industry* v. *New Deal Power Policy*. Its author has skillfully collected the facts on every public power project of the Roosevelt administration, and interwoven them with the arguments of a well informed advocate. By marshalling in one volume so enormous a mass of data, presented complete in ungarnished array for each project in turn, he has sought to construct a battering-ram so overwhelming in sheer weight that his opponents will perforce beat a retreat in hurried disorder. The compilation is supplemented by introductory and concluding chapters of undiluted polemics in which no device of advocacy is omitted. To Mr. Abrams the federal power policy is utter anathema, "which strikes at the very foundations of our privately owned electric power and light industry, and casts a doubt on the ultimate integrity of our whole economic system."

As a record of power development under the New Deal the book provides an extremely helpful check list. Illuminating discussions of the historical backgrounds, as well as details of actual developments, are provided not merely for the well publicized projects at Bonneville, Grand Coulee, Boulder, Central Valley, the St. Lawrence, and the TVA, but also for the far less well known activities of the Lower Colorado River Authority in Texas, the Santee-Cooper development in South Carolina, and smaller projects of the Bureau of Reclamation. The reader, however, should be warned to expect at every point an outcropping of argument interspersed with the bare factual recital. In some cases he may note the absence of relevant facts; thus, for example, in discussing the background of the TVA Mr. Abrams omits figures on the various private offers made to the Federal Government for the plant at Muscle Shoals. On the whole, facts are presented *in toto*, but the interpretation is saturated with the proclivity which the author seeks to promote.

Mr. Abrams' book in reality deserves a counterbrief documented project by project with the same care with which he himself has worked. Many of his criticisms of detail would be conceded. Few would be so bold as to deny that great difficulties face the salesmen of Grand Coulee power. But Mr. Abrams may come, in the not too distant future, to regret his confident prediction that it cannot be absorbed for generations. Not even the authors themselves of the TVA allocation of joint costs would argue its theoretical invulnerability, but it is difficult to reconcile a search for unbiased truth with the author's whole-hearted acceptance of the counterproposals put before the joint investigating committee by the hired representatives of TVA's opponents. In the absence of opportunity to make a comprehensive rebuttal, it must suffice to point out that each recital of facts is followed by questionable interpretation, and that review of the same basic data by an author less blinded to the possible role of public enterprise in a predominantly private capitalistic economy would lead in the great bulk of the instances to wholly different conclusions.

The color given to the facts is, of course, derived directly from the author's economic philosophy. Here he expresses his views unequivocally and with force. He concludes with a quotation from Thomas Edison, asserting that "there is far more danger in public monopoly than there is in private monop-

oly." The expressed views of both our major political parties over the past half century, who have repeatedly asserted, in the words of the Republican platform in 1936, that "a private monopoly is indefensible and intolerable," suggest widespread disagreement with his fundamental premises. He admits the need for public regulation of the utility industry as a safeguard against monopolistic abuses. But he suggests that simply because more electricity is now sold than used to be sold, charges lower, and service technically superior, state commission regulation is demonstrably satisfactory. "Only in an ability to engage capital at a slightly lower cost does any advantage accrue to a public electrical system which is denied private utilities," he writes. We are given no hint of the utilities' propaganda campaign of the 1920's. The difficulties of evaluation under the doctrine of *Smyth* v. *Ames* are hurriedly passed over. Yet the fundamental flaw in public utility regulation on our traditional basis lies not so much in the realm of technical evaluation difficulties, or even in the obstacles to effective state control of enterprises operated without regard to state lines; it lies primarily in the facts that thorough-going and effective regulation removes the primary incentives to efficient operation, and higher profits are consequently to be derived from evading regulation than from seeking increased efficiency of operation.

A word, in conclusion, on the author's dialectical tactics. He uses every type of catchword, as a skilled lawyer should, to obtain from the jury a sympathetic attitude toward his client. We have even the appeal to patriotism: "On the whole the record of privately owned electric utilities in the United States has been one in which all unbiased Americans may well take pride." Governmental actions are repeatedly labelled as the products of "political expediency"; non-commercial governmental activities are sneered at because they "have generally failed to warrant a designation as money-making pursuits." An effort is made to smear the Bonneville project by pointing out that its publicity director, C. D. Thompson, is a former member of the National Committee of the Socialist Party, although his salary of $5,600 a year seems remarkably low when compared with the scale for comparable services in the private sector of the industry. Read as a brief, Mr. Abrams' book is an excellent performance. But it is to be regretted that such evident scholarly talents have been devoted to wholly partisan argument rather than objective appraisal.

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Blair, George D. TREE CLEARANCE FOR OVERHEAD LINES. *Chicago: Electrical Publications, Inc., 1940. pp. 238. $3.75.*

In this book the author states that "the object of the volume is to assemble in a clear and comprehensive form for the first time accurate information in dealing with all aspects and problems of wire clearance from trees."

The text is based on the author's study of this problem over the last 16 years in the official capacity of forester in charge of line-clearance work for the Consumers Power Company in Michigan. This is a concise, well written book that is easily understood and covers a field which has too long been neglected and which has consequently suffered from a lack of authoritative material. This volume will prove helpful to all who deal with shade tree care and especially to those who are connected with public utilities or governmental units which are concerned with the problems of overhead lines, roads, streets, and shade trees.

The author treats the problem under 13 chapter headings, which are as follows: Introduction, Overhead Line Construction, Economics of Line Clearance, Proper Tree Care, Tree Formed Heights and Growth Rate, Standard Clearance, Highway and Street Requirements, Laws and Regulations, Public Relations, Trimming, Organization and Personnel, Equipment, and Safety Period.

This is an authoritative book that should be in the library of every wire line company, available to both office and field force. It is also useful to street and highway officials.

KARL DRESSEL

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